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THE MARCH OF EVENTS

FOR THE second time in succession the national conventions have chosen as their Presidential candidates outstanding leaders who are fitted for the highest office in the Republic. It is an encouraging sign that the man in each party who seemed best equipped for the job was chosen on the first ballot and that no political deal or combination was able to thwart what clearly appeared to be the choice of the majority of the party's rank and file. With the best man chosen by each party, we have done our utmost under our system to insure our greatest office against the sapping effect of incompetency and inefficiency in office. And with the best men chosen we can give more attention to the issues that in this campaign are likely to be three—prohibition, farm relief, and "big business," with prohibition and farm relief classed as major issues and "big business" as an issue of secondary importance. Classed in this "big business" issue may be taxation, unemployment, the Sherman Act, and other problems that directly affect the pocketbook of the American citizen. Or we might make the issues only two—palates and purses—for if we judge the facts correctly there will be very little touching upon the heart-strings or the great American sentiment. From all appearances it will be a clear campaign, with hard but fair blows struck on each side.

In the selection of these two champions there is cause for rejoicing in the great spirit and traditions of our institutions. To the man who rises to a commanding place in our nation we do not deny the supreme office because of prejudice, religious or otherwise. At last the man of genius born without his own consent in the slums may rank as Presidential timber with the boy lucky enough to be born without his own consultation on a middle-western farm. And at last the man versed in the arts of good and honest government may not be disqualified from aspiring to our highest office because he, like twenty millions of his fellow-American citizens, happened to have been born into a faith, mistrust of which among other millions of citizens was born in dark ages before our American forefathers wrote on one of the most inspiring pages of human history the simple statement that religious test shall not be a qualification for voting or, inferentially, for holding office. We hail the day when the only test for the Presidency is the test required of the ideal American citizen, as written into the immortal documents that lie in the cornerstone of this Republic.

And so we come to what may well be rated as one of the great campaigns in American history. On one side, the Iowa farm boy who became a cosmopo-

lite and devoted his life to the alleviation of misery among the stricken, regardless of race or religion, and who finally entered, unselfishly, the service of his own nation—a man of great ability and courage—an ideal American. On the other side, the boy from the slums who by sheer force of ability, honesty, and courage has lifted himself by his own bootstraps to the point where no man in his party can deny him the supreme honor of American citizenship—the right to contest for the Presidency as leader of a major political party.

That is a great moment in American history. There have been no back-room compromises, no dickers or deals. The good and bad points of all aspirants have been inspected in the pitiless light of day, and the best men have won. This is democracy at its best. Now may these two leaders contest for the supreme office on a plane befitting the conditions under which they were chosen—and may the best man win.

The Platforms

SECRETARY HOOVER has the advantage of standing upon the better platform—better because it is underpinned by the record of a successful Administration and because it has little of impracticality in its timbers. Governor Smith has the disadvantage of standing upon a "crazy quilt" structure that has been built to suit the varied sentiments and beliefs of a party that, except for brief periods in recent years, has been prevented by cranks from rising to fulfillment of its highest ideals. Consider, for instance, a platform that includes a "dry" plank so out of harmony with the opinions of the man who is to stand upon it that he must declare his intention of working for a revision of the prohibition laws. The plank means nothing; the words of Smith form the only plank on prohibition to be considered, and they are "wet," as they should be.

The Republican party states clearly—except in the case of the Nicaraguan occupation—the outstanding achievements of the last two administrations in foreign relations. The Republicans brought about the Washington Conference—which the Democrats mistakenly condemn as being of little value—and they have taken steps toward treaties outlawing war—a principle written by the Democrats into their platform as if it were one of their own. In the section headed "Foreign Policy," the Democratic platform states platitudes and inanities without putting forth any plan for a very necessary enlargement and expansion of our foreign service. "In our foreign relations this country should stand as a unit," says the platform, a statement that ignores the fact that this nation has never stood united on anything except the prosecution of the last war and will not stand united on anything until the next war.

In the vastly important field of foreign relations, therefore, both Republican platform and candidate promise wider achievement than do the Democrats. One of the most important topics in our international relations—war debts—is not mentioned by the Democratic platform, though it is not conceivable that this problem will fail to come up during the next Administration. But the Republican platform says that "the people can rely on the Republican party to adhere to a foreign debt policy now definitely established and clearly understood both at home and abroad." The Democrats promise nothing in this increasingly important field of foreign relations that the Republicans are not already doing—or pledged to do.

In the field of domestic affairs, however, the Democrats have some highly constructive promises. For instance, they propose a scientific study of unemployment with a view not only to improvement of conditions of labor in this machine age but also to the construction of public works in time when labor most needs that employment. In the field of government they also pledge themselves to the elimination of the lame duck by convening Congress immediately after election and not months later, as we do now.

Neither platform promises any definite plan or relief to the harassed bituminous

coal industry. Both parties are for any reasonable plan for settling the coal troubles—but some one else must propose the plan. Meantime, about 750,000 workers in this industry are existing at standards below our American scale. If conditions were improved, prosperity in general would be improved by the addition of at least half a million families to the nation's buyers of our goods. The straightening out of this industry would be a boon to a large stratum of our population and to farmers and other producers as well. Secretary Hoover has made a close personal study of this industry, and we may look to him for some constructive settlement of this long-standing problem.

Both parties stand for restriction of immigration, development of our merchant marine and inland waterways, Mississippi flood control, publicity for campaign expenditures, extension of the merit system in civil service, extension of highway systems—and in none of these subjects is there the beginnings of an issue.

The Farm Revolt

IN THE FARM question there is dynamite for the Republican party. President Coolidge and his advisers have attempted to handle the problem not only with thought for the future welfare of our greatest industry but also with thought of the effects upon the future of other industries. Their reasonable attitude has not stilled the clamor, and some millions of our citizens have chosen to make this a paramount issue in their voting next November. The Republican party is unalterably opposed to the equalization fee and favors settling this economic problem without tapping the Treasury; the Democratic platform contemplates financing of the handling of the surplus, and on this point it says:

> We pledge the party to an earnest endeavor to solve this problem of the distribution of the cost of dealing with crop surpluses over the marketed units of the crop whose producers are benefited by such assistance. The solution of this problem would avoid Government subsidy, to which the Democratic Party has always been opposed. The solution of this problem will be a prime and immediate concern of a Democratic Administration.

We predict that if the Democrats favor granting a subsidy under another name they will gather in farmers' votes, but they will alienate others, and the forcing of this issue will redound to the advantage of the Republicans. Except for this difference of opinion on granting of a "subsidy" or fee, both parties substantially agree upon the economic methods to be adopted. Both favor the creation of a Federal Farm Board to assist in marketing; both favor the development of coöperative marketing. In general, the Republican proposals seem sounder and more workable, and we may be sure that the next President, whether he be Hoover or Smith, will move for the rehabilitation of the farm industry as soon as possible after inauguration.

Facing Two Ways

ONE EXAMPLE of the "crazy quilt" structure of the Democratic platform is in the "dry" plank. The early traditions and principles of the party are opposed to prohibition, and President Wilson himself vetoed the Volstead Act but was overridden. Until the act is repealed, any President is required by his oath to attempt to enforce the law. And yet with a "wet" candidate, the Democratic platform makers, after a long fight and a compromise, said this:

> Speaking for the national democracy, this convention pledges the party and its nominees to an honest effort to enforce the Eighteenth Amendment and all other provisions of the Federal Constitution and all laws enacted pursuant thereto.

This compromise left Governor Smith the option of making a "wet" or "dry" campaign, and in these words he courageously chose the "wet" course:

> Common honesty compels me to admit that corruption of law enforcement officials, bootlegging, and lawlessness are now prevalent throughout this country. I am satisfied that

without returning to the old evils that grew from the saloon, which years ago I held, and still hold, was and ought always to be a defunct institution in this country, by the application of the democratic principles of local self-government and States' rights, we can secure real temperance, respect for law, and eradication of the existing evils.

The effect of these words is, of course, incalculable, but they may decide whether Governor Smith wins or loses. It is impossible to tell how far sentiment has grown toward a reasonable solution of the liquor question, but these facts are significant:

Illinois, with twenty-nine electoral votes, is normally Republican. But in 1922, by a two to one vote, that state declared for light wines and beer for home consumption.

New York, with forty-five electoral votes, repealed her enforcement act, Governor Smith signing the repeal. With prohibition as a paramount issue, Smith with his immense popularity may carry this normally Republican state.

Wisconsin, normally Republican, with thirteen electoral votes, voted two to one for 2.75 per cent. beer. Montana, Democratic, with four votes, by a large popular majority repealed its enforcement act.

Nevada, normally Republican, with three electoral votes, by three to one voted wet.

These facts are, of course, inconclusive, for other states voted dry in referenda, but nevertheless there is a growth in sentiment for some reasonable settlement of the prohibition question. And Governor Smith's courage in facing the question has undoubtedly won many friends to his cause.

Brakes in Wall Street

WITHOUT NEW legislation such as the late Senator La Follette of Wisconsin sponsored, to control brokers' loans, the Federal Reserve authorities have reaffirmed their position of supreme command in the money market. In the last three weeks of the first half of the year, three successive declines in brokerage loans brought the aggregate $400,000,000 below the peak of $4,427,691,000 established on June 6, 1928.

The central bankers are not concerned with inflated stock prices or overspeculation as such. They are, however, guardians of bank credit, and looked askance at the abnormally rapid flow of funds in increased volume into the stock market in the form of collateral loans. As early as last November, there was evidence that the Federal Reserve authorities sensed that their "easy money" policy was being misused by speculators. Accordingly, they reversed their open market and rediscount rate policy and, since the turn of the year, have been operating to make money dear instead of cheap. The objective obviously was to discourage further unduly rapid expansion of brokers' loans. The Federal Reserve authorities obviously had their eyes on security loans rather than on any unhealthy business situation, for there has been no sign of commodity inflation.

In January, the Federal Reserve authorities in their changed open-market operations, whereby they became sellers instead of buyers of Government securities, foreshadowed the February series of increases of rediscount rates of the twelve regional banks from 3½ to 4 per cent. This dose of soothing syrup temporarily quieted down Wall Street speculation, but after three weeks the impulses of emotional finance again expressed themselves with unbridled intensity. A long string of stock market sessions of unprecedented breadth reflected the widespread public scramble for stocks. In the process, the stock market drew an increasingly large volume of funds —not only from the banks, which gradually became more cautious, but also from corporations, wealthy individuals, and foreign governments with funds on deposit in New York. In April and May, accordingly, the Federal Reserve authorities, with their leadership flouted, applied a second dose of the soothing syrup, and it was not effective for many weeks.

Accompanied by huge gold exports, the Federal Reserve policy gradually substantially reduced the size of the gold reserve base. The selling of Governmen'

securities by the Federal Reserve banks has the same practical effect on the supply of Reserve funds as the export of gold, or the loss of currency by the banks. The member banks replenished their reserves by borrowing at the regional Federal Reserve Banks either through rediscounts or advances, and this trend gradually made the higher rediscount rates effective. As the better-managed commercial banks, especially those in New York City, get heavily in debt at the Federal Reserve Bank, they feel uncomfortable in making collateral loans for speculative purposes. Accordingly, call money rates usually rise with rediscounts. That explains why, in the latter part of June and in the beginning of July, interest rates for speculative credit —so-called "call" and "time" money rates for collateral loans in Wall Street— reached the highest summit since 1921.

The unrelenting closing in of the money pincers, in accordance with Federal Reserve policy, ultimately broke the backbone of the bull movement in stocks— temporarily at least. The very liquidation in stocks, however, released credit, and tended to foreshadow somewhat easier money rates. This trend was further accelerated by seasonal factors. Ordinarily the interlude between the Fourth of July and the last week in August is marked by a declining commercial demand for funds.

In four ways, the Federal Reserve has attained its objective of making money dearer, in spite of underlying long-term factors that make money relatively easy. *First*, it stood by and permitted gold to flow out of the country without offsetting its effect by the purchase of an equivalent amount of Government securities. *Second*, it actually reduced during the first half of the current year its portfolio of Government securities by $415,466,000 and of acceptances by $163,699,000, thus in effect tightening the money market. *Third*, it made a gesture against excessive use of funds in speculative channels through twice raising the rediscount rate. *Fourth*, in the June bulletin of the Federal Reserve Board there was implied warning to banks that they could ease up their position only by selling securities or reducing loans.

Over short-term periods, the Federal Reserve authorities have the power radically to influence interest rates, but over longer periods the underlying economic facts—America's world trade and creditor position and its eminence as a repository of gold—will prevail. Long-term, tight money does not appear to be in sight. As a matter of fact, after making a gesture against too much speculation, the Federal Reserve authorities themselves might perhaps welcome lower rates during the crop-moving period. European currency stabilization, in which American bankers have coöperated, is facilitated by cheap money in New York.

Order in Nicaragua

The suggestion that order has been established in Nicaragua by the American intervention arouses the ire of the fervent champions of Nicaraguan independence who criticize American activities in that country. They cite the "heroic" resistance of "General" Sandino, who is enthusiastically described as the "George Washington of Nicaragua," fighting for freedom against the foreign oppressor. Almost daily, reports of brushes between Sandino's men and our marines exclude other news from Nicaragua and tend to support the claim that the turmoil in the country has been increased rather than reduced by our intervention.

The warfare that was going on in Nicaragua at the time the United States intervened involved almost the whole territory. According to the estimate of Colonel Clifford D. Ham, who recently resigned as Collector General of Customs, after sixteen years' service with the Nicaraguan Government, civil warfare cost the country between 1,500 and 2,000 lives and more than $20,000,000 in treasure. The operations against Sandino are confined to a few jungle districts along the northern border. Sandino's followers number only a few hundred, and the total number killed is comparatively small. The rest of the country has returned to an orderly existence, and production and

development have taken the place of military destructiveness.

Despite the suppressed excitement, due to the approach of the election that is to be supervised by the United States, order prevails in the greater part of Nicaragua, and life and property are fairly safe.

Our task in the diminutive republic is difficult, and it may be years or even decades before a final solution of the problem is found. It should not be made more difficult by a misunderstanding of the actual conditions and the exaggeration of the operations necessary to restrain the Sandino band into the proportions of a war.

Mexico and the Church

PROBABLY THE most serious issue now facing Mexico is that between the Government and the Church. The struggle has been going on, sometimes openly, sometimes beneath the surface, ever since Mexico obtained her independence from Spain in 1821. Until the end of the Diaz régime in 1910, the Church had managed to hold its position, its property, and its privileges. The revolution begun by Madero shook its hold, and the Constitution of 1917 imposed upon the Church a large measure of control by the Government.

But it was not until two years ago, when President Calles put his stringent regulations in force, that the conflict became acute. The Government assumed the control of all Church properties and placed what the Church believed to be subversive restrictions on the Catholic clergy. All church services were discontinued, and Mexico passed under a modified form of mediæval interdict. The reaction of the Mexican people was curious. Although they profess almost unanimously the Catholic faith, only a small fraction offered any resistance to the action of the Government. The attitude of the mass is described by qualified observers as one of complete indifference. They support neither the Church nor the State. This has left the conflict one between the governing group in Mexico City and the Mexican clergy.

Neither side had any idea of surrender. The Government had the military power to enforce its decrees, and if the clergy submitted they would simply make permanent a condition that they found unendurable even temporarily. Compromise seemed equally out of the question, as the slightest concession by either side would be interpreted by both sides as a defeat. A deadlock ensued that only some outside influence could break.

The struggle provoked the liveliest interest in the United States. Catholics and many non-Catholics denounced the action of the Mexican Government as persecution. On the other hand, the liberal element in this country has been highly critical of Washington's opposition to the Calles policies and has demanded a more conciliatory attitude. Ardent Protestants added the weight of their approval to this opinion. The Administration seemed to invite attack, whichever course it adopted.

It fell to Dwight W. Morrow to make the attempt to get both countries out of an awkward situation. As American Ambassador to Mexico, it was beyond his province to take any official action touching upon the Church problem, which was rightly considered a domestic affair. He could, however, and he did, win the confidence of the Mexican officials to a remarkable degree. His position and connections gave him an excellent opportunity to be of great assistance to both parties. That either failed to take advantage of this is hardly conceivable.

In any case it is significant that, not long after Morrow's arrival in Mexico City, Rome was brought into the controversy. Rome has a longer experience and a wider view than could be expected of the Mexican clergy. Rome knows how to compromise to her own interest. There will be no haste about the matter. The Vatican will move slowly and cautiously. But it will move surely. In time, the vexed question will resolve itself into some *modus vivendi* in which the Church will resume its spiritual functions and at the same time abandon its political activities without any formal surrender of its rights.

The Dawes Plan Bears Up

GERMANY and the Dawes Plan are acquiring an awkward habit of doing things to confound the economic theorists who predicted the inevitable failure, not only of this particular plan, but also of any attempts to force Germany to pay her share of the war burdens. The impossibility of collection and the impossibility of transfer were both proved to the satisfaction of the advocates of this theory. Then they waited for the fulfillment of their prophecies. When the first few years went by without a hitch, we were adjured to wait for 1928—to wait for the "standard year" in which the big payments must begin.

We have waited. The fateful year is here. So far, Germany has collected everything according to schedule, and the money has been transferred to the creditor countries without any of the dire results the prophets predicted. There has been grumbling in Germany, just as there has been grumbling in every other country, over the tax burden. But the thing has been done, and even German complaints about its injustice are only half-hearted.

Now we have Mr. Gilbert's report for the last quarter-year and his estimates of the immediate future. His past estimates have been remarkably accurate, and there is no reason to believe his current ones are less so. But they contain little to console the prophets of disaster. Mr. Gilbert entertains no doubt of the ability of Germany to meet the fifth annual installment—the first "standard payment"—without difficulty. The economic and financial rehabilitation contemplated in the Dawes Plan has been accomplished. Reconstruction proceeds apace. Germany is a going concern. She has her troubles, as do all countries, but she is doing what is expected of her.

The harbingers of ill may be thus disposed of. But there is another aspect of the reparations question that demands attention. The Dawes Plan prescribes how much Germany is to pay each year, and how she is to pay it. The experts, however, received no mandate to fix the total amount of her obligation, and all mention of this matter is omitted from the plan. Germany is paying, presumably to the limit of her ability, against an unknown debt.

It was well enough to leave the total at the fantastic figure of $33,000,000,000 fixed by the Allies at London until Germany had shown her good faith, her willingness to make the effort to pay what she could. This good faith and this willingness have now been amply demonstrated. Millions of dollars have been paid on reparations account, and the attitude thus indicated has been confirmed by the recent election, in which the parties that favored this policy were returned to power.

Germany has discreetly refrained from making any official request to have the total of her obligations fixed with some respect for realities. Such a request would at once revive all of the old arguments, even though they have been long since disproved, and all the old animosities, even though they have no place in the work of European reconstruction. It is much better to have the initiative come from the sponsors of the Dawes Plan, where politics and emotion give place to economics and reason.

Mr. Gilbert appropriately repeats his previous recommendation that Germany's debt be finally determined. If a figure can be agreed upon that is within Germany's power to pay and at the same time places upon her people a proportionate share of the losses incurred by the war, there will be an added incentive, not only to meet the Dawes schedule, but also to hasten the process and thereby to regain sooner a position of economic equality. The beneficial results of such a step would be felt in every country in the world.

The War on War

SECRETARY KELLOGG has now received replies from all the countries that he invited to renounce war as an instrument of policy. All of these countries have accepted the proposal "in principle." It

now remains to agree upon a formula that will express the principle and at the same time preserve all the rights and reservations of all the powers concerned. This may be done by means of an elaborate preamble leading up to the original "pure and simple" Kellogg renunciation, or it may be done by reservations expressed in the treaty or in parallel documents.

That it will be done in one way or another seems highly probable. That such a treaty will have a beneficent influence when it becomes a part of the law of nations is also highly probable. The Secretary of State is entitled to all credit for his negotiation of an international pact that writes into the law of the world the cherished aspirations of the peoples for peace.

In rejoicing over this aspect of the matter, however, it will be as well to bear in mind that the negotiators have not struck off a constitution for the millennium. It is improbable that the treaty that may result from their efforts will end war. Europe expects no such results, and the danger of war in Europe is the real cause of world anxiety. The final test of Europe's attitude would be her willingness to disarm, but the discussion of the treaty has given no impetus whatever to plans for disarmament. Europe, until she sees some tangible results, refuses to entertain any illusions as to the effectiveness of the new pact.

This is not due to any perverseness inherent in the Europen character. It is due to a long and tragic contact with the realities of war and its causes. It is easy for us in this country, without territorial ambitions, without irredentist problems, far from any neighbor who can resist our power or would think for a moment of challenging it, to fall into the way of thinking of wars in Europe as resulting from the natural bellicosity of its inhabitants. From this it seems the natural conclusion that if they will just agree not to be bellicose—if they will just agree to look upon things as we do—there will be no more wars.

Such reasoning overlooks the fact that in our brief history we have gone to war almost as frequently as has any European country during the same period. There are questions over which we will fight despite our supposedly pacific outlook. For the nations of Europe such things are always present. These nations are unable to throw off the apprehension that at any moment a "fighting issue" may present itself. And they make their preparations accordingly. The European attitude toward the Kellogg proposal is therefore quite different from that prevailing in this country. The European mind simply cannot concede effectiveness to any prohibition—call it renunciation if you will—that lacks machinery for its enforcement. The Kellogg proposal offers no machinery whatever for realizing its commendable aspiration.

Why, then, do European chanceries bother their heads with it? Why do they not contemptuously brush it aside as they did a similar proposal by Poland at Geneva last September?

They do not because it is not advisable to be contemptuous toward the United States. Public opinion here wants the treaty. A great political party is concerned with its success. Therefore the European governments will go along with Mr. Kellogg—as far as they can without sacrificing any interest that to them appears vital. If they can get any concessions from the United States—such as a renunciation of war as a means of upholding the Monroe Doctrine or a tacit agreement to collaborate with the League of Nations—so much the better.

France Returns To Normalcy

FRANCE'S DECISION to rejoin the procession of civilized nations that pay homage to gold constitutes the final curtain in the drama of post-war abnormal public finance. It also represents another triumph for financial orthodoxy. Inflation came with the war, but the soft money doctrines, which pathological financial conditions temporarily encouraged, have been rejected. Gold may be only a fetish of the human race, but it possesses enormous psychological power as a symbol of confidence and stability. Resumption of gold specie payment is the modern way of

telling the world that the feverish fluctuations of an irregular period have been supplanted by a new equilibrium.

Currency reform throughout Europe has been reactionary in a favorable sense. It has been marked by a reversion to sound pre-war methods, instead of by experimentation for managed currencies in which the varying discretion of all too human bankers would be substituted for the anchoring power of gold, which is impartial and unprejudiced in its regulation of a public financial situation.

Unlike Great Britain, France has not attained stability through restoration of the pre-war party. On the other hand, unlike Germany and Austria, it has not completely repudiated the old currency in setting up standards for the new. The Teutonic countries acknowledged that their old currencies were worthless, and started out entirely anew. This action had the effect of repudiating the outstanding internal debt and also of nullifying private obligations, not payable in gold, which were payable in old marks and kronen.

France, like Belgium and Italy, took a middle course, saving the old currency from utter worthlessness but revaluing it substantially below the nominal mint parity. In effect, France has settled for 20 per cent.—for 20 cts. on the dollar. The effect of the adjustment was discounted by de facto stabilization since the late fall of 1926. The French Government and the Bank of France arbitrarily selected a value of 3.93 cents for the franc, in place of 19.3 cents, the pre-war value.

The new adjustment is a step toward candor. It brings the nominal and the actual together. It wipes out legal fictions, and destroys forlorn hopes. On the practical side, it makes France better fitted for foreign trade and for tourist travel. No longer do contracts, made in French franc, involve a currency gamble. In its new revalued dress, the French franc, amply backed by gold in the Bank of France, takes its place with the leading units of hard money of the world—the dollar and the pound sterling.

One by-product of the independent settlements by France, Italy, and Belgium has been the break-up of the former Latin currency union, under which Spain, Italy, Switzerland, France, and Belgium had the same mint parity as the pre-war franc. Instead of standardization, there is a new babel of differing units of currency, a trend that removes financial brotherhood among nations farther away.

In its larger economic sense, France's new gold currency is a hallmark of the close of the period of economic reconstruction in the old world. After a decade of getting back, Europe is now ready to move forward. This transition is significant to Americans as vendors of exports to Europe and as competitors with Europeans in other markets.

Our Duty as Interveners

NOTWITHSTANDING the success of Mr. Hughes and his colleagues at Havana in defending the American policy of intervention in the Caribbean region, there remains a feeling of uneasiness among the American people as to the practical working of this policy. The theorists who would leave the republics of the Caribbean entirely free to work out their own destinies no longer command much attention. The hard fact that we shall be called upon from time to time to intervene is generally recognized. But intervention often develops disturbing incidents, and we should be glad to avoid the resultant criticism that comes from the other Latin-American countries when such incidents occur.

Attention has frequently been called to the fact that the marines are not an instrument of diplomacy. They are an instrument of force and are inclined to pride themselves on letting nobody forget it. This is altogether commendable when force is actually needed. But the same spirit is apt to overflow on occasions when more pacific methods would achieve more lasting results. The Marine Corps may well be proud of its record. It has done magnificent work both in fighting and in pacific administration. But nevertheless there have been unfortunate "incidents."

It is conceded that it is necessary to use

marines in most cases of intervention. But is it necessary, when the die has once been cast, to turn the whole matter over to the officers of the Navy and the Marine Corps? There is no question that Naval officers have done excellent work under trying circumstances. The Navy is justly proud of the service that the admirals and captains of the Marines have rendered to American diplomacy. That some of its officers have not been so successful does not detract from the honor of those who have. But the fact remains that a Naval officer represents the military power of the United States. No matter how well he manages to restrain his natural tendencies to do things in a military manner, every act of a Naval officer is looked upon by the people concerned as a military act. It is an easy step from this to denouncing the policy of the United States as militarily aggressive.

We are open to more criticism of the same kind when Naval or Marine officers are entrusted with the administration of another country after the actual work of pacification has been completed, such as has happened in the Dominican Republic and in Haiti. Clarence K. Streit, in a thoughtful article in the July number of *Foreign Affairs*, points out how our intervention has gone astray in Haiti. The avowed purpose of our Haitian experiment is to assist the Haitians to achieve a governmental stability that will enable them to take over their own affairs. The Treaty allows us twenty years, from 1916, in which to do this. Mr. Streit gives full credit to the Marine and Naval officers in Haiti for the splendid work they have done in establishing order, constructing roads, bettering sanitary conditions, improving the public health, and extending agricultural education. But the political factor has been almost ignored. The Haitians are no more capable of taking over their own government to-day than they were when the treaty was signed, and only eight years remain of the twenty given us. The sin is not one of commission but of omission. It is owing to the fact that Naval and Marine officers are schooled to let politics alone, and political affairs are not easily brought within the scope of their interests.

Mr. Streit's suggestion is that, if we are again called upon to intervene in the affairs of a neighboring nation, at the time the decision to intervene is made a civil commission consisting of three men of outstanding ability be appointed to supervise and direct the entire undertaking. Some such step is still possible—and seems highly desirable—in the case of Haiti. It also commends itself in the case of Nicaragua and in the case of any other intervention that we may be called upon to make.

A subordination of military to civil authority is a well-recognized principle of our own national life. That the same principle has not been applied in the matter of intervention is undoubtedly because interventions have been looked upon as a species of minor war. While military operations may be a necessary accompaniment, intervention is now understood to be essentially a civil and political process. The recognition of this fact in actual practice, by the prompt appointment of qualified civilians to direct the work, would secure better results and at the same time disarm much of the criticism of our supposed imperialism.

The government is repeatedly urged not to intervene without calling other Latin-American states into consultation in order that the intervention may be international, rather than national, in character. There is a legitimate hesitation in adopting such a course, owing to the probability that we should find ourselves pulling many strange chestnuts from the intervention embers. The conduct of intervention by a civilian commission would have no such dangers and yet would emphasize the constructive side of the intervention process.

Barbecues in Politics

Roasting—and How it's Done at the National Conventions

HENRY F. PRINGLE

WITH CARICATURES BY ROBERT JAMES MALONE

IN THE great quadrennial trial by combat—the Peoples *vs.* the Professional Politician—victory rests, this year, on the banners of the people. The national conventions of the Republican and Democratic parties are fast fading into the mists of time. The keynote speeches, the nominating addresses, and the innumerable other oratorical offerings have been rushed into print in the hope—never abandoned by political leaders—that they will be eagerly read by the electorate. Few, however, will pay any attention to them, and fewer still will bother to wade through the sonorous sentences of the official party platforms.

The confusion, the crowds, the heat, and the discomforts of Kansas City and Houston are by now merely unpleasant memories. But out of it all stands one impressive fact, one in which believers in the democratic form of government may well find satisfaction—the 1928 conventions resulted in the nomination of two men who were overwhelmingly the popular choice. And they are, beyond any question, the most able among all the candidates the two parties could offer. The practical man whose livelihood depends upon political activity did not, originally, desire the nomination of either Hoover or Smith. This is because the machine politician prefers nominees who are subservient, obedient, safe, and devoid of original ideas. The politician also desires, of course, a candidate who will win, and the knowledge that Hoover and Smith had the largest personal followings contributed very definitely to their nomination. Even more important, though, was the fact that the old-line leaders were befuddled, disorganized, and unable to agree among themselves.

Those of us who listened, during virtually the entire month of June, to the blare and ballyhoo of these two political gatherings cannot avoid wondering whether a national convention has not become a somewhat futile, possibly a dangerous, thing. Certainly the total cost of the two circuses—by which I mean the money expended in one way or another—was more than $1,000,000. And what did they accomplish? They merely ratified the will of the people as expressed in numerous state primaries. In that they did this, the conventions served their purposes, of course. It seems to me, though, that

the public will would stand a vastly better chance of fulfillment through some other system, probably revitalization of the state primaries. Called in the name of democracy in government, the national convention has become at least a potential means of blocking the desires of the electorate. It is true that the leaders could not do so this year. But they have in the past and they will again. Why were the "dark horses" present in such numbers at both Kansas City and Houston? Obviously because each entertained hopes that Hoover and Smith would be eliminated. Politicians still cherish the notion that they can move these huge assemblies by oratory. They bring with them the silver-tongued spellbinders of their local communities and prepare to view with alarm and to point with pride. The politicians believe, also, that music will charm the delegates into voting for their candidate, and consequently there are bands in profusion. But the danger that a convention will be stampeded to the nomination of some obscure and entirely worthless dark horse grows constantly more remote. A modern national convention is usually too large and too lethargic to be swept by emotion. The peril to the public will lies, I think, in the fact that the important work is carried on in hotel rooms and at committee meetings. The delegates, knowing very little of the real currents at play, do as they are told by their leaders.

SENATOR ROBINSON OF ARKANSAS
Reading his speech at Houston.

And yet the passing of the national conventions would take a picturesque and intensely American institution out of our national life. They are colorful, amusing, and frequently grotesque. They enable several thousand Americans from all parts of the nation to mingle with each other and discuss the weather, the income tax, politics, and the best means of obtaining liquor. This nation of ours, any one who has attended political conventions must admit, is dry only in theory. The platforms of the Democratic Party and the G. O. P. solemnly attest, of course, their devotion to the Eighteenth Amendment. But scores of delegates who voted in favor of those platforms had been industriously investigating the "speakeasies" and the beer parlors of Kansas City and Houston. They are amazingly hospitable towns, these two, and their proud citizens were filled with gratification that a convention was in session. So they invited the visitors to their homes, gave them the most comfortable chairs, and brought out their liquor. Scotch, rye, gin, and all the other proscribed beverages were available in large quantities. One's host was happy to recommend the honesty of his personal bootlegger and the purity of his stock. Cards guaranteeing admission to the more select "speakeasies" were cheerfully furnished, and in neither city did any of the convention guests suffer from thirst. At Kansas City, I was assured, the supplies came directly from Canada. At Houston there is a flying field toward the south of the city, where—so every one says—airplanes from Mexico land their cargoes. And

Galveston, fifty miles away, is as wide-open a city as any in the land. Houston and Kansas City are arid only politically.

The conventions over, it is interesting to analyze the strategy—so-called—that dominated them. In so doing, one is forced to the conclusion that little of it was in existence, and that there was little real leadership. Every one was aware, by the time the delegates had gathered at Kansas City, that Hoover was to be the nominee. At Houston, Smith was the inevitable choice, and his managers, anxious that none of the more or less influential favorite sons might take offense at "steam roller tactics," actually attempted to prevent a nomination on the first ballot. Throughout both conventions the delegates and the alternates were mere puppets, and the paradox in the whole situation is that they bowed and nodded, not to the will of political bosses as is more often the case, but to the will of the rank and file of their parties.

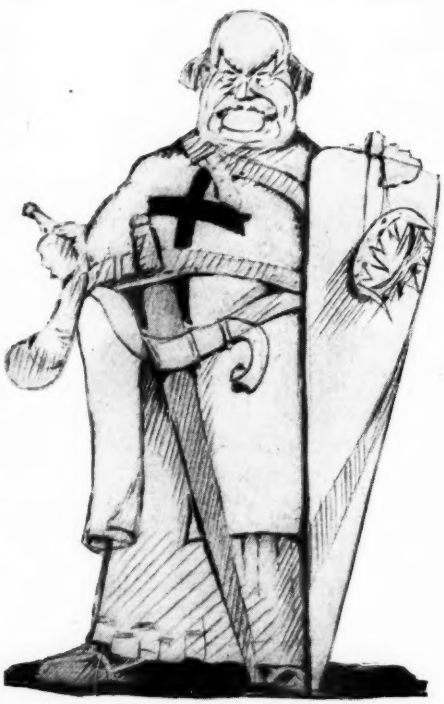
Behind the scenes at Kansas City—and also out in the open—there were forces working against the nomination of Hoover. And yet there was no one to lead those who opposed him. A few hundred farmers, who had drifted in from the neighboring states, were paraded through the lobbies shouting "We Won't Vote for Hoover." Hoover was being blamed for Coolidge's veto of the McNary-Haugen bill, for price fixing during the war, for all the woes of the farmers. But distrust and lack of harmony made it impossible for the various candidates to agree on the way to fight Hoover. And they had, of course, no candidate with half the popular strength of the Secretary of Commerce. Governor Lowden might have been the rallying point. He had, however, expressed approval of the equalization fee that Coolidge had denounced, and to accept him meant a repudiation of the Administration. As it was, Lowden withdrew in disgust upon hearing of the farm plank in the Republican platform. The selection of Curtis for Vice-President—he had voted both for and against the McNary-Haugen bill and therefore could be offered to both sides—was decided upon without consulting the delegates. They met on the morning of the last day and swiftly carried out their instructions.

The G. O. P. left Kansas City singing hymns of peace and harmony. And yet, under the surface, there were bitter sores. The New York delegates who had fought Hoover felt that they had been betrayed by Mr. Mellon. The farmers, somewhat mollified by the selection of Curtis, grumbled that they intended to go to Houston and ask the Democratic Party for the relief that had been denied them. The wounds of the convention shall no doubt, have been healed before election day. The fight on the farm plank, the only exciting event of the entire convention, shall also have been forgotten. So too, probably, shall the minority platform that was presented by young Senator Robert M. La Follette, of Wisconsin, which demanded specific and emphatic repudiation of

GOVERNOR SMITH
Ready for congratulations

Sinclair, Fall, Doheny, and Will Hays. I have said that it was the popular will that assisted in the nomination of Herbert Hoover, and this was true. One recalls, however, that in 1920, also, Hoover enjoyed a large degree of public favor, but that he received only a handful of votes in the convention. This time, assisted by Dr. Hubert Work and his other managers, Hoover made a drive for the support of the men who control the Republican political machine, and before the first delegate had made reservations for Kansas City he had obtained that support in large measure. Hoover not a politician? It was one of the reasons advanced against his candidacy. But any one who watched the Hoover "steam roller" in operation at the convention, who identified the leaders giving him their support, who witnessed the thoroughness with which the Hoover men prepared for the debate on the contested delegations—any one who was at Kansas City will be forced to admit that the man has learned a good deal about politics in the eight years that have elapsed since 1920. Hoover might have won the nomination without his efficient machine, so disorganized were his opponents. It is quite possible that his leadership shone chiefly by comparison. It was, at all events, the only leadership at the convention, and it was impossible to defeat after the convention became certain that President Coolidge intended to retire.

Those of us who were attending both the conventions assured each other, as our trains roared through the heat of the Texas prairie toward Houston, that the Democrats would provide a better show. Kansas City had been unmarked by anything approaching the dramatic. Even the candidacy of Hoover left something to be desired. But at Houston, we felt sure, there would be bands playing "The Sidewalks of New York," an occasional brown derby, picturesque Tammany leaders from the old Fourth Ward, statements from Senator Jim Reed, who continued to make his bid for the nomination, red fire, Ku Klux Klan protest meetings, and parades. In part, our expectations were justified. Bands boomed and blared through the streets from morning until night. A rodeo had been arranged for the benefit of the delegates, and the cowboys, to advertise the events, spurred their horses between trucks, trolleys, and automobiles. A cowboy band, escorted by a girl on horseback, took up a position in the lobby of the leading hotel and made a horrible din for hours on end.



THE CRUSADER

Dr. Nicholas Murray Butler wanted a wet plank in the Republican Platform.

More life and color marked, too, the sessions of the convention. The memory of Kansas City is that of a gloomy hall, brilliant only in the glare of the photographers' arc lights. One remembered going out for a smoke during the interminable keynote speech by Senator Fess, going out for another while Senator Smoot read the platform in a voice that even the amplifiers above his head failed to make audible. One remembered half-hearted demonstrations when Hoover

was put in nomination. But at the Democratic rally a genuine demonstration took place during the first few hours—when Claude G. Bowers, the key note orator, demanded that "the hand of privilege shall be taken out of the farmer's pockets and off the farmer's throat." It was an old-fashioned, windy, bombastic political address, one that the audience delighted in and that was greeted by whoops of applause. There was another spontaneous parade of standards when Senator Joseph T. Robinson, the permanent chairman, reminded the 16,000 men and women who sat before him that in the United States there was no religious qualification for those seeking public office. And, finally, came the address of Franklin D. Roosevelt, placing the name of Alfred E. Smith in nomination—a speech that will not soon be forgotten: eloquent, sincere, restrained, and moving.

SENATOR CHARLES C. CURTIS
Satisfied to be Republican Vice-Presidential nominee.

"To sally forth to battle and win for our principles is something more than heroic," said Mr. Roosevelt, who at Madison Square Garden four years ago had played the same rôle. "We offer one who has the will to win—who not only deserves success but commands it. Victory is his habit—the happy warrior—Alfred E. Smith!"

On the whole, of course, the Democratic convention was tranquility itself. Smith was nominated on the first ballot. And then on Friday morning, June 29th, the delegates gathered to nominate Joe Robinson for the Vice-Presidency. It had all been arranged weeks before, and there was no doubt as to the outcome of the balloting. It had been a fairly colorful, harmonious convention—in marked contrast to the desperate struggle of four years ago. But would Smith send a message on prohibition before the final adjournment? He did, and this marked, in my opinion, the high moment of the entire convention. The Democratic platform, like that of the G. O. P., had contained a bone-dry plank. But Smith, a wet ever since his old days as a Tammany legislator, sent word that it would be only honest for him to point out that he believed in modification. He would enforce the law as long as it remained, but he believed that "real temperance, respect for law, and eradication of existing evils" could be obtained only "by the application of the Democratic principles of local self government and states' rights."

At Kansas City the old-time leaders, such as Quay and Penrose and Platt and Barnes, were missing. At Houston there was no Murphy, no Taggart, no Bryan. I have, personally, no knowledge regarding the skill and sagacity of these revered figures. Perhaps they were really wise. No doubt they ruled with iron hands. At these two conventions, at all events, there were no such mighty rulers. The politicians seemed at sea, disorganized, drifting. But out of the conventions there came two men who are now the supreme commanders of their parties. Their names are Herbert Hoover and Alfred E. Smith—and one of them will be our thirty-first President.

"No Foxes Seen"

A Log of Arctic Flying Adventures

CAPTAIN SIR GEORGE WILKINS

Courtesy Air Associates, Inc.

When Captain Wilkins and his American companion Carl Ben Eielson completed their epochal flight of 2,200 miles across the Arctic between Alaska and Spitsbergen they sent this cryptic message to the American Geographical Society: "No Foxes Seen," which meant that in that wide expanse of unexplored ice they had seen no land. Captain Wilkins did not see land or foxes but he did see many other strange and beautiful sights, as he tells in this article about his flight.

"SWITCH OFF?" I asked Eielson.

"Switch off," he answered.

"Gas on?" I asked.

"Gas on," he said.

I swung the propeller sharply through three or four turns to suck gas into the cylinders, placed the blade at an angle marked previously to show when one piston was in firing position, and then shouted:

"All clear?"

"All clear," Eielson answered, and snapped on the switch. He swung the booster magneto, and, as she had done each time we asked her to start, the engine coughed once, kicked back, coughed again, and then emitted a steady purr. My heart swelled with thankfulness. The engine sounded fine and though the direction of the wind was not perfect it was still very good.

The weather forecast, as I understood it, was in our favor for the greater part of the journey. We must chance what we might find at Spitsbergen. The only regret was that five gallons of gas I had intended to pour into the tanks before starting had leaked out during the night. There was no more on the field and without time to send back to the hangar we were forced to leave with the tanks not quite full. However, I felt we should have sufficient to cover our journey.

I climbed into the navigator's cabin and shouted "Let's go!" to Eielson. Eskimos yawed the tail of the machine and we slid off the boards we had placed beneath the skis to prevent them from freezing to the snow. Away we went, quickly gathering speed down the runway. The floor of the track was slightly undulating, and as our speed increased Eielson had a

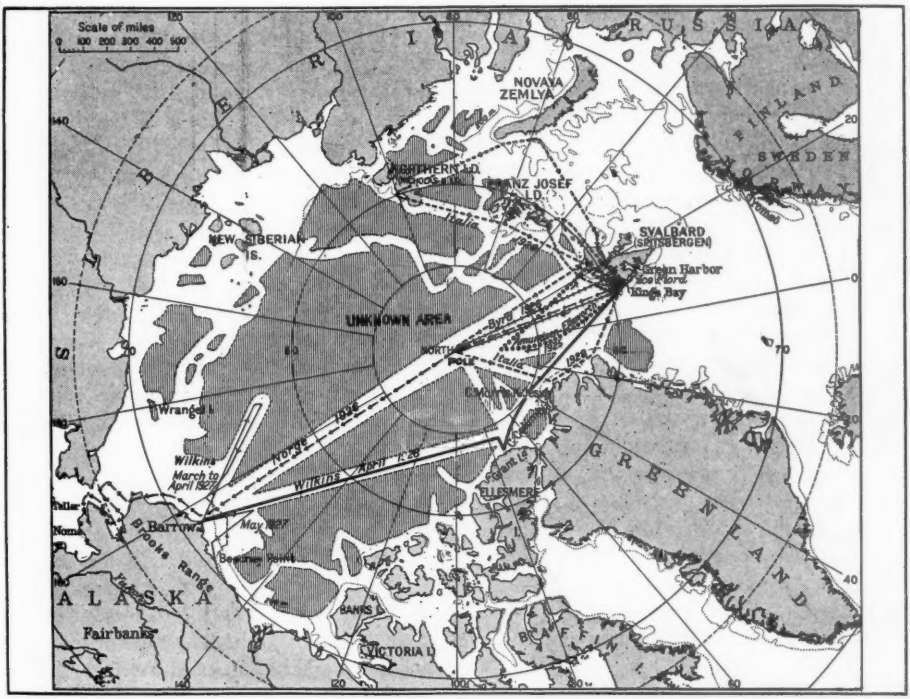
difficult task to keep the fast-moving plane within a 14-ft. runway. Thirty, forty, fifty miles an hour—we gathered speed as we progressed, the machine behaving like a proud horse tugging at a load. From the cabin window I could see the tail planes swaying and missing by no more than a foot first one bank and then the other. I marveled at Eielson's skill and courage. An error of a few pounds' pressure on the rudder, a swing of a few inches one way or the other, and we should have hurtled into the snow bank, our skis would have buried themselves beneath the blocks we had thrown from the runway, and disaster would have surely followed. Eielson kept his nerve. I prayed. Sixty, seventy miles an hour. We lifted, swung sickeningly, touched the ice again—then soared smoothly into free air! Never has there been a more fervent prayer of thanksgiving than the one I uttered. Our greatest danger was passed.

I passed a note to Eielson: "Wonderful take-off. How's everything?"

"Everything great," he shouted through the speaking tube. "She handles fine. Engine turning seventeen twenty-five."

We had previously discussed the first leg of our course in relation to the sandpit at Point Barrow, so Eielson could take up his departure from that point.

Ground speed was 108 m. p. h.; drift, ten degrees to the left; and wind at low altitude, slightly north of east, a little against us—but that I did not mind. We were by that time thirty miles over the Arctic Ocean, and I was sure that the wind would soon change. The horizon to the north and east was as clear as clear could



Courtesy *Geographical Review*, American Geographical Society of New York.

THE DIMINISHING "UNKNOWN AREA" OF THE ARCTIC BASIN

The map shows the areas subtracted from the "unknown" by air exploration in recent years, the unexplored areas being indicated by the darker shading. These air voyages were the Amundsen-Ellsworth airplane expedition in 1925; Commander Byrd's Greenland Ellesmere Island airplane exploration (not shown) in 1925; Commander Byrd's polar flight in 1926; the *Norge* flight in 1926; Wilkins's exploration north of Alaska in 1927; Nobile's exploration in the *Italia* in May, 1928; and the flight of Wilkins and Eielson in May, 1928, described in this article.

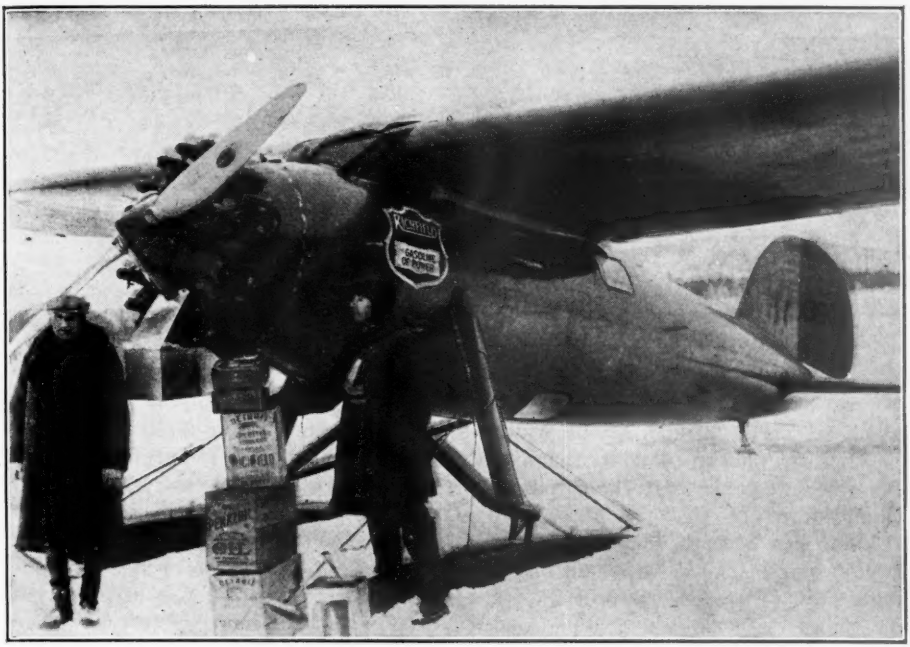
be. The ice, after we had skimmed over the lagoon and crossed the rough high-pressure ridge near the shore, was badly broken, and much open water was in evidence. For the first fifty miles these conditions prevailed. We flew on and on, and I was as busy as a bird dog for the first few hours, settling everything in the cabin. I put out my charts, tested both sextants for index error, put them in order, tried the gas pump to see that it was clear, made sure the dump valves were free should we have occasion to use them, set the wireless aërial, testing its note to get the best resonance, made sure the drift indicator was registering true, and changed it from side to side. I discovered that my stop watch would not function if left in the cold cabin and so I had to keep it in my pocket. I had little time to write notes or closely examine the ice, but I had plenty of time to notice that a forced landing anywhere during the first three quarters of an hour would have been our last. The pack ice was so badly broken that there was no ice smooth enough or fields large enough for a machine to land. I had supreme confidence in our machine and in finding good landing fields farther out at sea.

For the first hundred miles we flew at an altitude gradually rising from 500 to 800 ft. At that distance from the ice pack we could see every detail clearly. About a hundred miles from shore the ice became heavier, and ridged. The ridging seemed to be the result of heavy packs coming from the northeast and, moving against the shore, pressing the lighter ones moving west. The direction of the ice falls indicated the direction of the greatest pressure. My long experience in traveling over the ice on foot, watching it grind and pile itself in ridges, and finding my way by the direction of snow drifts, here proved useful many times.

As I rode comfortably in the plane those half-forgotten experiences of traveling on foot came back clearly to my mind. Many times while I sat in a small, roughly fashioned snow house, sheltered from the driving snow and watching the drifts pile high, I had studied the manner in which they formed and had sometimes, no doubt, cursed the fate that had placed me among such conditions. None the less, those experiences were standing me in good stead; each snowdrift and ice ridge had a story to tell. To watch them as we passed above was like reading a familiar story.

Near 73° latitude on our course the narrow leads in the ice ran east and west, but in the distance to the westward I noted their direction trended more toward the north. That surely meant one thing. Leads generally form at the edge of some obstruction where the ice, meeting great resistance, presses up in ridges under the force of wind and current and, when the force being exerted upon it is reduced, the ice slackens, leaving lanes of open water. Or, if a high wind drives a heavy deep-riding floe, the lighter pack is driven ahead of it, also producing leads. The sight of these curving leads informed me that we must soon pass over some evidence to account for them. We came to that evidence in the form of heavy, old ice, obviously deep in the water, and in which there were no leads. The light wind from the eastward failed to move this heavy pack as quickly as it moved the lighter ice farther west, thus producing the leads we could see.

For about two hundred miles we crossed this old-type floe. There were a few breaks in it here and there; perhaps never more than thirty or forty miles without a lead of some sort. By this time the wind at our altitude had swung to the northeast, but was very light and interfered very little with our speed, which was about 108 m. p. h. At the northern edge of that old-type floe we came to many leads and much young ice. Then the wind, in a short space of time, changed rapidly through east-southeast to south and then to southwest. It is probable, though not necessarily positive, that the thick old conditions were the result of the peculiarities of the air currents in that vicinity. The ice conditions indicated activity and frequent changes in the air, and the directional movement of the old ice seemed to be restricted in its drift by converging currents of wind and water. It might be that this



THE SMALLEST CRAFT EVER USED TO EXPLORE THE ARCTIC

Captain Wilkins stands at the right and Lieutenant Eielson at the left. Their single-motored Lockheed "Vega" cabin monoplane has a wing span of 41 ft., a length of 27.5 ft., and a height of 8.5 ft. The Fokker tri-motored airliner used by Commander Byrd in his polar flight had a wing span of 63 ft., 3 ins., was 49 ft., 2 ins. long, and stood 12 ft., 9 ins. high.

ice accumulation is the result of snow in a comparatively calm zone, in which temperatures varied frequently. For, roughly estimated, two hundred miles after passing the old ice we crossed young ice leads, and ordinary pack ice such as is common on the edge of the Arctic seas—where winds are variable and strong and sea currents forceful. By the look of the ridges on the ice in that area we judged that the drift and pressure had been alternately east and west, with some pressure from all directions. Next we came to old, heavy, ridged ice again and at almost the same time to a cloud bank.

An hour or so before, I had watched with interest the sky behind us darkening. High in the air over an area that had been beneath a clear canopy when we passed, long stratus clouds had formed. Now scarcely visible, then darkening, the cloud bank we rapidly were approaching announced its presence by a peculiar grayness above the horizon. If the air is calm to the limit of vision, the sky seen from the altitude at which we were flying touches the distant earth rim in almost steely blueness. The cloud bank we crossed over was probably the result of a comparative calm between winds in the vicinity at that time.

When I observed the drift before coming to the clouds, it was to the southwest, but it had calmed down somewhat on the upper surface of the clouds—judging from the manner in which the low crests dropped. The wind was from the northeast, but we were too near the surface to take drift observations. The main body of clouds seemed stationary, but it is not possible to be positive of cloud movement from an airplane. Meeting low clouds at that interesting point of the journey was exasperating. Land in that particular vicinity would best serve our meteorological plans—enabling us to complete a ring of stations on fixed points almost equidistant in longitude and at

AT POINT BARROW—WHERE THE POLAR FLIGHT BEGAN
Dogs hauled the monoplane to its starting place. The engine is protected with tarpaulins.

about 80° north latitude. My great desire had been to find an island at that point, but when we came there the surface was cloud-ridden.

What lies beneath that hundred and twenty mile belt of cloud is still a secret. Naturally, we saw glimpses of the ice a few miles on each side of the clouded area, and when the surface beneath us cleared it was seen to be old, heavy pack ice. I should say that the distance obscured from view where land might have been was not greater than eighty miles. The type of clouds that covered it were not conspicuously land clouds. They were more in the nature of cloud waves I have observed above sea and pack ice. But since the clouds were too low for us to go beneath them, we cannot be sure that they did not cover low land.

When we saw the ice clearly again it was broken with much light pressure. The leads that day were east and west; the snowdrifts were mainly northwest-southeast, but the ridges showed that the wind and pressure had been at times from all directions. Soon we were in an area where old, probably land-fast, ice had been reported. The conditions we observed might easily lead one with limited vision—all that could be seen, for instance, from the ground on a foggy day—to think this ice was on solid land above sea level or resting on a shallow sounding.

We were flying at an altitude of 3,000 ft. The rounded hummocks topped with clear ice glistened in the sun. It might readily have been mistaken for glacier ice, but I have seen much old, so-called palæocrystic sea-borne ice with rounded hummocks topped with clear ice, and that beneath us resembled such ice in all respects. Besides, while there was no open water within sight, many cracks in the surface gave me the impression that there had been open leads but a few weeks before. These ice-covered cracks ran irregularly east and west. The snowdrifts were north and south, formed mostly when the wind was from the north. We saw no great pressure ridges such as those usually found near land-fast ice. Perhaps that old ice rests on *terra firma* and is stationary, but my decision at the time—based on the facts just mentioned—was that it was floating. After carefully considering my notes and turning over memories of the flight I have no inclination to reverse my judgment.

The wind, as we crossed that old ice, was behind us, in the direction from which we had come, showing that a storm center had formed high above the cloud belt we had crossed. We had apparently traveled out of the edge of a storm, crossed a calm belt, met some variable airs, and had now entered another storm that was evidently centering about north Greenland. If we could avoid the center of the storm, swinging on its circling rim, we should no doubt be aided by the wind.

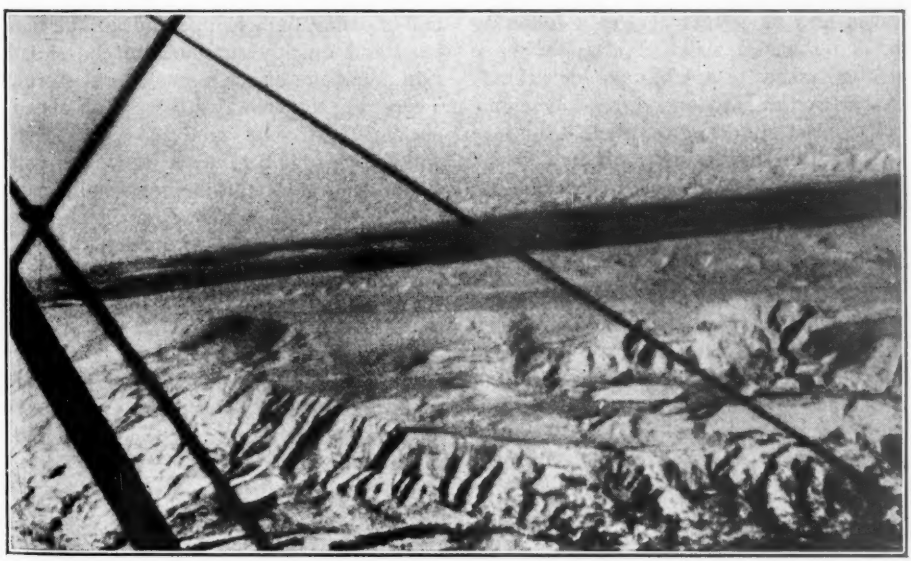
We had now been in the air eleven hours. It was past midnight local time, although the sun—now almost due north—had been well above the horizon all of the time. Yet for an hour or so it had been almost

impossible to get even a reasonably accurate sextant observation, probably because of the refraction. My sights of the sun would differ so greatly as to vary its position by 2°. It was almost beyond me as we sped along to keep the sun centered on the bubble of my sextant; I had to make many readings and take their mean. This difficulty did not present itself earlier in the day nor did it have to be contended with later when the sun was higher above the horizon. About midnight, from an altitude of 3,000 ft. we observed with the naked eye the dull red orb dance and skip like the mast-light of a distant ship rising and falling with the waves.

My attention was riveted to the ice area north of us. It was in that neighborhood that Dr. Cook claimed to have seen land. Far to the north, between the sun and the horizon, a grayish belt that appeared to me like thin, slow-moving clouds stretched like a silken scarf in the wind, beneath which I could see a clear-cut horizon. If there was land beneath that cloud belt it was low, with a level surface. We felt certain then, and believe now, that no mountainous land exists between Grant Land and the North Pole. Still, humans are prone to err, and we state only what appeared to us to be the conditions for a hundred miles or so on either side of our course.

About this time Eileson, who could see the gas gauges and the tachometer, handed me a note reading: "Engine been turning about sixteen fifty. We are using approximately eighteen gallons an hour. Now about forty gallons left in wing tanks. Oil temperature hundred and five." This showed that our gas consumption so far was high. We should soon be consuming less gas, since our load was getting down to normal. By rough calculation I figured that if we could get the consumption down to even twelve gallons an hour on the last quarter of the journey we should have enough to complete twenty hours' flying.

We were averaging more than a hundred miles an hour over the ice. The distance over our course without deviation was about 2,200 miles. We had seesawed over the clouds, and we would probably seesaw again. We had also, according to my observations, swung a little to the right on one leg of our journey and a little to the left on the next leg; it was not possible to keep accurate within a mile or so. I felt certain,



THE FROZEN ARCTIC SEA OVER WHICH THEY FLEW

The slight chance of a safe landing or of rescue if forced down among these mountains is very evident in this glimpse of the top of the world

if my interpretation of the meteorological conditions were right, that we should have no violent head winds and that we could make it, but I knew it would mean piloting with strict attention to the job and most careful navigation.

I was confident in the comparative accuracy of navigation so far and was cheered by the fact that we were obviously over comparatively neat-shore ice. By near-shore I mean within a hundred miles or so. It is not difficult to differentiate between ice frequently on the move, pressed by the winds against the stubborn resistance of shallow water, and the ice far off shore. Ahead, high clouds of a nature observed only in the neighborhood of land, rose to considerable heights. Far, far away in the very distant eastern sky, pillars of high storm-clouds hung like wraiths under the pale blue zenith; they were perhaps four or five hundred miles away and could be seen only with the aid of clear, high atmosphere and the advantage of 6,0000 ft. altitude above the ice. Beneath these vaporous pillars was a grayish-white darkening toward the horizon. From north and south, long, gray stratus clouds streaked toward the storm center.

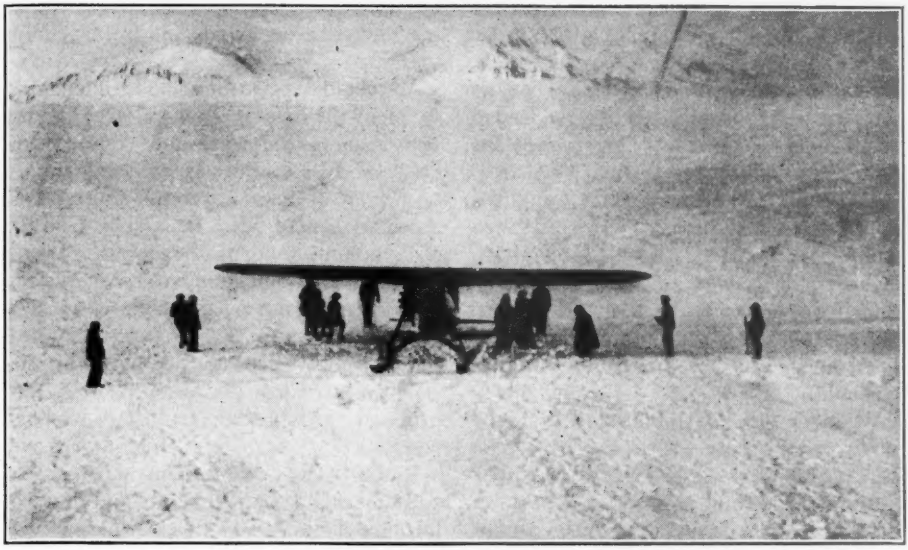
I was then certain of the Greenland storm and as certain also of a following wind for many miles. We might have swung southward to clear the high clouds that barred the way on a direct course, but it had been my desire to check absolutely our position by actually sighting Grant Land in the distance. With the cloud interference, a distant view was not to be had, and when Eielson, to avoid a towering cloud mass, swung to the south, I acquiesced. There was really no reason for this move, as we could be at no point other than north of Grant Land. The clouds spoke of the mountains they covered, but it is only human to want the assurance of actual vision. I wanted to see rocks and soil.

To the south the clouds rose steeply, higher and higher; Eielson swung more to the right to avoid them, and I hurriedly passed him a note: "You must not go west of south. Turn east or north, if necessary, to avoid cloud." Faithfully, Ben banked the ship and swung to the north. Vision ahead was bad. We ploughed through several cloud banks, and I was hastily writing a note to tell Eielson my estimate of the exact position, to inform him that we could not afford to go into the cloud to look for Grant Land, and to suggest that he swing due north to clear the cloud when I heard him shout.

I looked out of the window and saw slightly to the right and not far away—perhaps less than twenty miles—the rugged mountain tops of Grant Land piercing the clouds. It was a fleeting glimpse, but it served to stir deep emotion in our hearts. Without much ado Eielson took up his course from the penciled chart and in a few minutes shouted "Am I heading right?" "Okeh," I replied. Our course at that point was a little north of east; our swing to the south had put us slightly off our plotted route but not far enough to affect seriously the compass courses calculated before we left Point Barrow.

Our work of exploration was really over. We were cheered immeasurably by the fact that our machine had performed wonders, that our engine had been faithful every moment. Calmly content, I reached for the thermos bottle, poured myself a cup of coffee, munched pemmican and biscuit, and quickly summed up the situation. We were above a small local storm. There was the Greenland storm on ahead on our right. The wind by observation was strong and behind us. If we kept on for an hour and the engine should give trouble we could hardly expect to return to Grant Land. Could we in that case fly as a cripple through the storm to land on Greenland? I knew from Peary's writing that the sea ice north of Greenland was treacherous. Even if we found a safe landing field, the walk to shore and habitation would be difficult. Because of the low temperature we were experiencing—in the cabin 5° above zero; outside 40° below—and of the wind direction that must go to make up the storm we could observe ahead, I felt sure that above the warmer surface conditions near Spitsbergen there would be clouds, perhaps violent storm.

It was between 1 and 2 A. M. Barrow



AT GREEN HARBOR, SPITSBERGEN—THE END OF THE FLIGHT
Some twenty hours after leaving Point Barrow, storms forced down the monoplane on Dead Man's Island, Spitsbergen, and for five days prevented continuance of its flight to Green Harbor.

time, 8 A. M. local time, and I had not eaten since leaving Fred Hopson's kitchen eighteen hours before, but I interrupted my breakfast to write Eielson a note: "There are two courses open," it said. "We are above storm now. Down there we can land and wait until it's over. Can we get off again? If we go on will meet storm at Spitsbergen and perhaps never find the land. Do you wish to land now?" Ben, with his stolid courage and calm mind, wriggled in his seat. I could see a few inches of his shoulders above the gas tanks, his head being hidden by the wing. In less than a minute he replied:

"I'm willing to go on and chance it." That accorded with my desire. We had been thirteen hours in the air, long enough to be tired and cramped. The gas consumption had been more than we expected during the early part of the trip. There would undoubtedly be many miles of open water to cross at the extreme end of our journey. On the other hand, there was a fine landing field below. In case of accident we knew that we could support ourselves in northern Grant Land. If we could not rise again in the air we could walk with more or less ease and comfort to the Canadian Northwest Mounted Police Station on Bache Peninsula, which lies north of Etah across Kane Basin. We might then return to civilization in the autumn with some vessel. But a true flying man sticks to his ship as does a sailor. It would have grieved us more than enough to have wrecked our plane or left it behind. We had experienced that feeling of loss last year when compelled to leave the Stinson biplane for want of gas. I was willing to trust Eielson's skill as pilot in bad weather, he was willing to trust my navigation, and we both had confidence in the men who had produced our equipment and in the quality of our gas and oil. We kept our course without faltering.

I was positive that the low temperature and the high northwest wind would lead to trouble where it met the warmer air near Spitsbergen. Already on the far horizon we could see the ashen grayness that, when seen from a distance, indicates high Arctic winds and storms. But the north wind had us in its paw and, as Peary said of his return trip from the Pole, we were sliding down the North Pole Hill in fine shape. The edge of the Greenland storm and the cloudy conditions near Spitsber-

gen seemed to meet in the far south, but for a couple of hundred miles our way was clear. Then we could see before us high, curling, cumulus clouds rising to heights even greater than our now lightly loaded plane could reach. As we approached the clouds, Eielson climbed the machine steadily up—up to 7,000, 8,000 ft.—and the clouds were still high above us. It was useless. We could not hope to get above them, and if we were to conserve our gasoline it was not advisable to go any higher. We must thread our way through the cloud lanes—and keep our courage as best we could.

We made sure that all the gas that the pumps would carry was in the top tanks. It appeared that we had gas to last four hours at least, and perhaps more. At an altitude of 8,000 ft. we entered the cloudy area. Eielson selected the lanes between the feathery masses, cleverly compensating for his deviation without my aid. Southward the clouds seemed lower and we turned in that direction, hoping to spy a mountain peak by which to locate our exact position. We were rewarded by the immediate appearance beneath us of two sharp, needle-pointed peaks. Down we spun through a break in the clouds for a closer view. Once getting a sight of land, we thought it might be feasible to fly low and follow its contours. The air was turbulent above the clouds; beneath them it was boisterous. Our now almost empty plane was tossed like a cork on a stormy sea. Loose things in the cabin tumbled and rattled. With nothing to get a grip on, I tumbled, too, even though I didn't rattle.

Right then Eielson's valuable training and cool skill demonstrated their worth. With engine full on and with the plane nosed down she bucked like a bronco, but Eielson guided her splendidly around the rugged mountain tops. We came down to within a few feet of the ice-strewn water near the coast, where the surface wind was furious and the salt spray, whipped from the sea, filled the air. Over the land the snow drifted high and thick, precluding a judgment of distance. A patch of smooth, snow-covered land was passed in an instant's flash and dead ahead loomed a mountain. With an adroit swerve of the machine Eielson avoided it by a narrow margin.

We could see that it would be dangerous to follow the coast too closely, so we swung broadside to the wind and crabbed our way out to sea. But the sea held for us no haven of rest or safety—unless, forsooth, it should be a long, long rest. It soon became evident that what we had missed was a small mountainous island, also that it was useless for us to remain out over the water. Back we turned toward the land, only to be warned again by the steep mountains. We were like an imprisoned bird beating against a window pane.

We knew we were running short of gas and must land soon or be without enough to move again if we came down. We had no choice but to endeavor to relocate that one smooth patch of white our fleeting vision had caught. The windshield before Eielson was almost totally obscured with snow and frozen oil; his vision was restricted to the little he could see through the small open windows and to looking first on one side and then on the other. The windows of the cabin, flush with the fuselage, were clear of snow and provided me with a fairly clear outlook. We hawked about this way and that. I passed note after note to Eielson as fast as I could write them:

"Turn right." . . . "Now to the left." . . . "A bit more." . . . "No, we have passed it." . . . "Turn back." . . . "Turn back." . . . "Keep as close to the land as possible." . . . "*There it is on our right!*"

Eielson had little time to read my notes. Indeed, I marveled that he could even spare time to grasp them, let alone follow their meaning, so busy he must have been with the controls of the machine. We were past the place almost as he saw it, so he swung once more out to sea in a narrow circle and heading into the wind came low into the teeth of the snow. It was an anxious moment for both of us. My face was hard against the windowpane as I tried to learn if the surface was smooth or covered with broken ice. It was impossible for Eielson to see, but with steady

nerve braced for all eventualities he leveled the ship and lowered her gently until lost in the swirling snow.

We came smoothly to rest. Because of the high wind, our ground speed, gliding with engine dead, was necessarily slow, perhaps twenty or thirty miles an hour. Even on the ground we could not judge accurately the force of the wind because of the blinding snow, but it must have been unusually high and was such that the machine moved scarcely thirty feet beyond where the skis first touched the snow. Once on the ground we could see no more than a few feet to each side of the machine. I flung the engine covers and an empty oil can from the cabin and struggled forward to empty the oil tanks before the oil should freeze.

"Open the tap," I shouted to Eielson and held the can under the drainpipe; but nothing happened. Again I shouted my request as loudly as possible. But Eielson was temporarily stone deaf as the result of the constant throb of the engine. He could not hear a word, and only by signs was I able to make him understand that the oil flowed. The wind continued with hurricane force and high drifts soon formed. We stamped the snow about the skis so that it would freeze and prevent the ship from swinging or turning over. As quickly as could be managed, we threw the covers over the engine—first the one of canvas, then the waterproof—and tied them tightly. We could convey our meaning to each other only by signs but, as had been the case last year when we had fallen 5,000 ft. through a dark, raging blizzard to the pack ice, there was nothing we needed to discuss immediately. Silently we climbed into the cabin of the machine and brushed the snow from our clothing. "Thank God! the machine's safe," I screamed in Eielson's ear. He nodded solemnly. The minds and hearts of both of us were too full of thankfulness for conversation, even if hearing had been easy.

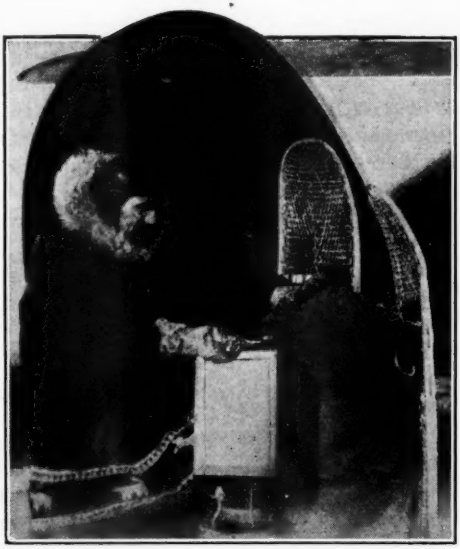
The plane rocked and trembled in the gusty wind. I reached for the remainder of the lunch provided for our use during the flight, and we munched dry biscuit, chocolate, and pemmican. There was still in my thermos bottle enough hot coffee for a swallow each. Ben had a few cigarettes in his pocket, and after a smoke we settled down to rest. Neither of us, I think, was physically tired, but the strain of the last two hours had told on our nervous systems. Sleep for a while was impossible. Our coast to coast, non-stop flight had been ended. We had been twenty hours and twenty minutes in the air. It was less than half an hour since we first sighted the twin mountain peaks, yet it seemed like an eternity to us.

In an hour or so our strained nerves relaxed and we slept. When we awakened the snow was still drifting, but more gently. We felt that we had taken a Rip Van Winkle sleep, but our watches showed that scarcely five hours had elapsed since our landing. The midnight sun struggled valiantly enough to promise that later in the day the clouds would be dispersed. We rested and slept again. When we next opened our eyes it was to find the sun clear in the east and well above the mountains. With the bubble sextant I got a fairly reliable altitude of the sun. Our calculations and drawings on the chart placed us somewhere on a line that exactly followed the west coast of Spitsbergen. After a few hours, when the sun had swung to the south, another observation for altitude would enable us to draw another line on the chart, and where those two lines met would be our approximate position.

The snow rolled along the ground but was not drifting high. We jumped from the machine to wander around and take stock of our surroundings, but a few steps from the plane told us that without snowshoes or skis we should not go far. Each step let us down to our knees in the soft snow. As we unfastened the skis from the cabin wall I was glad I had not yielded to my temptation at Barrow to reduce weight by leaving one pair behind.

I walked to the foot of a mountain a few miles eastward and saw that beyond it lay either a channel or deep fiord, extending for many miles. I could see no end to the open water. There was little time

for observation. The snow, still drifting, was beginning to swirl high again, and I hastened back to get a second sight and see where that would place us. I was so dead tired from my walk and the previous day's exertion that I was willing to believe that the second observations of the sun were probably indifferent. They placed us on Spitsbergen, somewhere opposite the approximate middle of Prince Charles Foreland—between Kings Bay and Green Harbor. It seemed that, although we had followed along the coast, we could not have come so far. The morrow might be fine, and a definite position established within fifteen or twenty miles. There was little doubt that if we had fuel for an hour or an hour and a half we could reach some habitation.



HEATING OIL FOR THE ENGINE
Gasoline stoves were used to warm up not only the oil, but also the engine.

All the next day [Tuesday] the southerly wind continued, later swinging suddenly to the north again and beating down with fury. I had seen some logs of driftwood while reconnoitering, so the next day [Wednesday]—although the snow whisked about, and visibility did not exceed a few hundred yards—we hitched ourselves to logs of driftwood and dragged them laboriously through soft snow to a little rock exposure near the plane. It was useless to attempt to build a fire outside that day, but the wood we thought would come in handy to warm the oil and give us heat for a drink of chocolate before we started out again. Next day [Thursday] in a spell of calm weather, though still in snowdrifts, we tried to build a fire, only to discover that the wood we had struggled to get was so salty and sodden that it refused to burn even after being saturated with the old engine oil we had drained from the tanks after landing. An hour's effort produced almost enough melted snow to fill our two thermos bottles with lukewarm water. For further liquid we must resort to our small store of alcohol.

The knowledge of this aggravated our thirst, but expending little energy, lying cosy in the cabin—our feet well covered in our sleeping bags and our arms drawn inside our fur shirts—we needed little to eat or drink. The waiting was tiresome and we were restless. We were somewhat anxious about the actual amount of gasoline. With the tail of the machine on the ground the gauges were not precise. The snow prevented our draining the tanks and measuring the gas in an empty five gallon can we carried. We smoked the cigarettes I had provided for an occasion such as this. We had two cigars and one day we divided one cigar and each smoked one half. Patiently we waited for the weather to clear.

During a lull on Friday morning we measured the gasoline, running it through the carburetor to be sure that all we measured would reach the engine if necessary. Only five gallons ran from the two starboard tanks. There would be about the same quantity in the port wing tanks, for they were connected. Yes! Another five gallons were discovered, but our spirits sank, for we believed we had pumped the cabin tanks bone dry and knew that ten gallons, if we had trouble taking off, would barely get us into the air. We were miserably downhearted and were afraid to rip

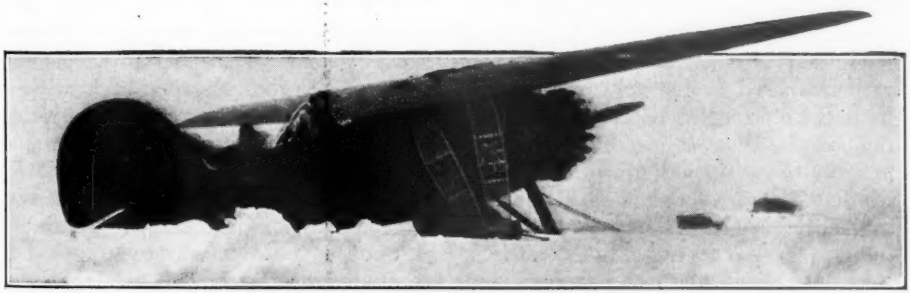
the seals from the dump valves of the cabin tanks. But we must drain every drop! Wearily we set the can beneath the cabin tanks, and I pulled the rip cord.

Much to our delighted astonishment a full stream of gasoline came forth. Through a half-inch opening the five gallon can was soon filled and there was more to come. Fifteen gallons! That amount was worth while, but how were we to block the pipe while the five gallons of gas we had extracted was poured into the upper tanks? We had but one can, and nothing would stop the flow except some soft obstruction fitting snugly against the pipe. The only soft thing available was my hand. I slipped my mitten free, shoved my palm against the pipe. Gasoline ran down my shirt sleeve and, evaporating, decreased the temperature. It seemed as if my hand would freeze solid before Eielson had time to drain the can and place it once more under the opening. We could not afford to lose the gasoline. Ben made all possible speed, but I suffered excruciating pain and frostbite before the can was replaced. Less than half a gallon more came from the tank. Still, it was worth it. I thawed out my hand and arm and the same procedure was followed on the other cabin tank. We measured, in all, more than twenty gallons into the top wing tanks. We were confident that twenty gallons would take us anywhere we wanted to go in Spitsbergen.

We climbed into the cabin, had a good meal of pemmican and raisins, and turned over for a comfortable sleep. We hoped the weather would clear by morning and we could get under way. While we were sleeping the wind grew stronger and the rocking of the plane wakened me, but the storm was waning, and I felt it could not last much longer. So all Friday afternoon we tramped back and forth on the snow in front of the drifts that had formed immediately before the machine. We first broke down the snow with our boots, then slid back and forth on snow shoes until we had a hard runway nearly four hundred feet long. The wind blew strongly from the north throughout the afternoon and night, and the drift was blinding but it bowled along over the pathway we had made, leaving no ridges there and polishing the surface.

We had sighted Spitsbergen at 6 P. M. local time on Monday and landed twenty minutes later. It was not until Saturday at 3 A. M. that the weather was again fit for flying. At that hour we climbed from the machine and cut and shoveled snowdrifts for six hours to clear the machine at the head of the runway we had made smooth for a downhill start. We planned, if we had no time for more accurate sights, to rise in the air and from an altitude observe the coast, definitely fix our position, and then choose our course.

We placed the stove beneath the engine. It was difficult to do this in a wind, but once in place, it gave no trouble. I heated the oil on the Primus stove in the cabin. We were soon to find that our decision not to land on the pack ice with half a load had been very wise. The tanks now held only twenty gallons of gasoline. With



SAFE IN GREEN HARBOR AFTER THEIR DARING FLIGHT

The greatest value of the meteorological and commercial flying data obtained by Captain Wilkins lies in its influence upon future air commerce via the polar route.

that for a load and with two of us aboard the machine would not budge an inch. When I got out and pushed the tail she started fine, but to climb in as she moved was not simple. It was now that we felt keenly the loss of the block and tackle taken from our equipment at Fairbanks. It has been designed for just such an emergency. With the loose end of a bight in one hand and hauling on the free end of the tackle I could, while in the cabin, have exerted the strength of four men and, when the machine moved, could have drawn the block and tackle into the cabin for further use. But that part of the equipment—invaluable where two men must do the work—was not with us.

Because the machine would not move with the two of us in it when I first pushed with a long stick from the cabin, I had to get out and push on the tail. As she started I clung to the step and tried to climb in but soon fell off. Eielson, unable to see behind, thought I was in the machine and took off. When he turned with the machine he saw me forlorn on the ice. He circled and landed. I slung out the rope ladder I had prepared in lieu of the block and tackle, but I wasn't too sure that my ability as a sailor would enable me to gain the cockpit with the aid of a dangling rope in that low temperature. To cling to a rope and scramble into a plane in warm weather is one thing; to attempt the feat in below-zero weather on a plane traveling at the rate of a hundred miles an hour is quite another. I hadn't the slightest desire to dangle like a puppet until I froze and then drop like a plummet to destruction. However, I decided to try it and hang on at all costs.

We started again and as the machine gathered speed I climbed to the tail and from there struggled desperately to gain the cockpit. I had thrown off my mittens in order to get a good grip of the ladder. My hands were soon so numbed with the cold that they could not readily grasp the rope, so I grabbed hold of it with my teeth. A foolish thing to do, perhaps, but it seemed imperative that I cling to the machine. We had gathered much speed, and Eielson, feeling the weight still on the tail, thought I was safe and took off. Just before he left the ground I realized that my chance of gaining the cockpit in the air was much too small, and I slithered from the smooth, shiny fuselage, was struck by the tail, and fell to the snow. It was fortunate for me that the snow was soft. I was half buried and partly stunned from the fall. When the snow was freed from my eyes and mouth I found that I had escaped other injury, but every front tooth in my mouth was loose. Whether from the impact of the fall or from the grip on the rope I was not sure, but I think now that it was the result of holding onto the rope.

Eielson, in the air, discovered that I was still on the ground, so he circled and landed again. The snow was by no means perfectly smooth, and the wind was across the ridges, making it necessary to land across them. I trembled for fear the landing gear or the skis might break. I was directly before the machine as she landed. The sight appalled me. It struck the snow and bounded over the ridges like a frightened deer. The skis, slung and kept in tension with rubber cords, bounced and wobbled almost like the arms of an octopus. They wouldn't stand many more landings on snow like that.

It was hard to know just what to do. I was still a little winded from my fall and, dressed as I was in my flying clothes during my strenuous efforts, I was wet almost through with perspiration. We had been running the engine for almost an hour and had used almost half of our precious gasoline. If we could not get off the next time I should take the tent, a rifle, and some food from the plane and Eielson should go on alone, either to Kings Bay or Green Harbor, coming back with a boat for me at some later date. That would have been a desperate move. It would have been unwise for a party of two, situated as we were, to split. There was no forecasting what might become of either of us; but ours seemed to be a desperate plight. We could possibly have found our way to the mainland and along the coast to some habitation, but that would have entailed leaving the machine

behind. Perhaps—only perhaps—we should be able to pick it up later in the season. We might have waited there with the machine on the off chance that a boat would come to our rescue. Sealing boats would occasionally pass that way, but busy as they are about their business they might easily fail to see our signals.

We decided on one more try. In an effort to move the tail, I should hook one leg in the cockpit opening and with my foot against the fuselage push with all my strength on the log of driftwood we had first used. To get a better start, we lifted the tail to almost flying position and rested it on a block of ice. Then I fixed myself and the stick, gave Eielson the signal, and he shoved the throttle full open.

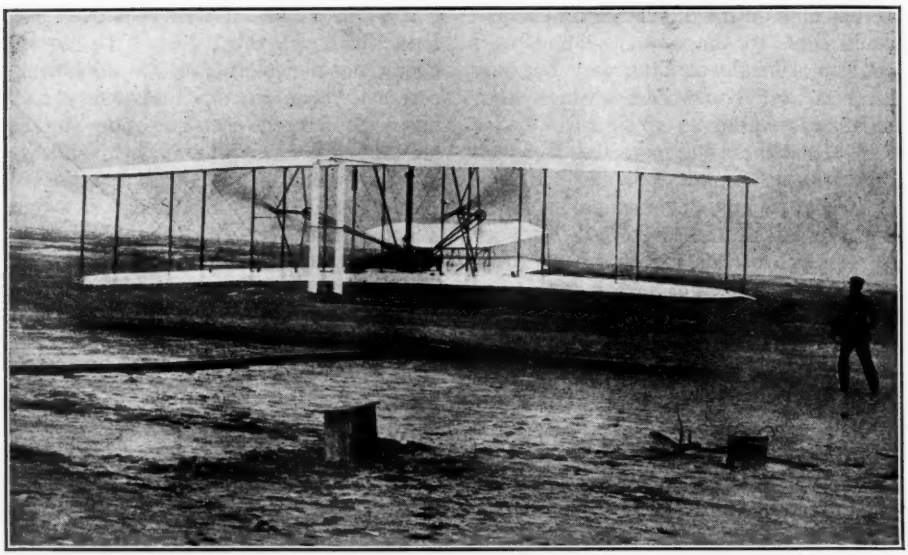
For a full minute the plane did not move. I pushed and strained every muscle. The tail swayed the inch or so allowed by the play in the skis but seemingly would move no farther. Suddenly, with a slight lurch, the machine was free. I dropped the log and with one leg in the cockpit and with hands on its open rim I dragged myself up, and regardless of bruises, tumbled to the bottom of the cabin. Utterly exhausted, I was unable to answer Eielson's shout of inquiry. He took off hoping I was safe. Before he had time to circle I had let him know that I was aboard. I wanted as soon as possible to get a general view of our position, but the warmth of my body caused hoar frost to cling to, and obscure, the windows. It was useless to try to clean them, and it was essential for me to see where we were and agree upon a course to follow. Just as I stuck my head through the open cockpit for this view, I heard Eielson shout: "What's that over in the bay to the left?"

We had rounded the high point near which we had been and were by that time at an altitude of almost three thousand feet. I looked to the left and through wind-born tears saw two tall radio masts in the distant group of houses. It could not be Kings Bay. The shape and dimensions of the fiord disproved that. I ducked into the cabin and wrote a note to Eielson: "Must be Green Harbor. Go over and land where you think best." We crossed over about five miles of open water, swung across a mountain top, and then planed down close to the ice. The snow surface on the harbor ice was smooth, and we flew past the radio masts for a mile, passed the immense surface machinery of a coal mine, skimmed out over the ice, and then came in, to land at the foot of the radio masts. Our flight from our base in Alaska to a town in Spitsbergen was ended.

We had covered 2,200 miles of Arctic snow and ice, 1,300 miles of which had never before been seen by man. About 1,800 miles of the way was traversed in clear sunshine. A little more than 100 miles of cloud-covered ice in the center of the hitherto unknown region between Point Barrow and Greenland was the only blot on an otherwise clean page of exploration. The clouds met in other latitudes were over well-known ground and were only an interference because of their obstruction. We had carefully noted the trend of the drift of the ice and the direction of the snow drifts, which gave to us an idea of the movement of the air currents near the surface throughout the season. We demonstrated that it is possible to find one's way in an airplane on a cross-longitude course in the Arctic regions —even when that course is half-way around the world and lies across the area where compass declination is at its maximum.

Whatever else we might have done through our successful efforts we shall learn only as time goes on. Eielson and I have learned, at all events, the sincerity of friendship. The fullness with which we appreciate the generous aid of many women and men, without whose support and faith and loyalty we could not have done even that which we have done, can never be expressed. We thank them all.

Knights of the Air



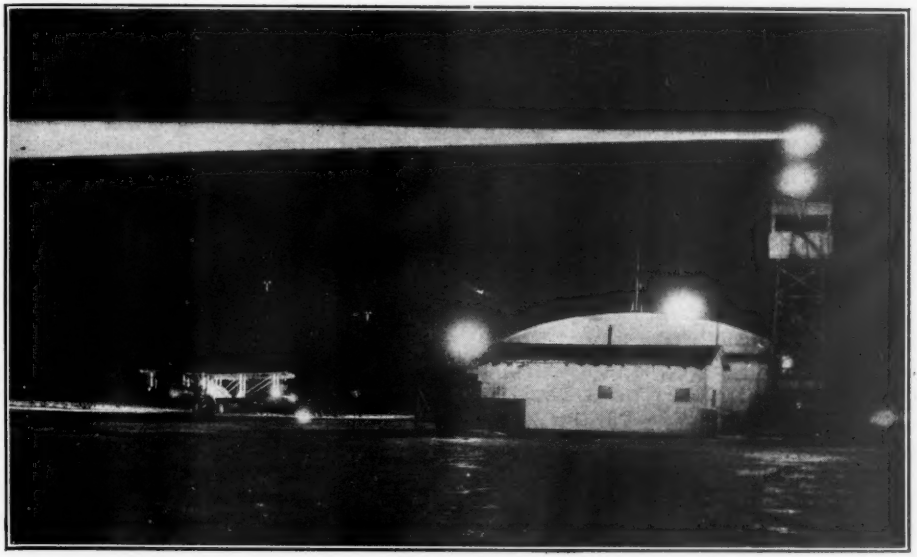
1903 Morning. Sea-gulls weave in circles against low-hanging clouds. Gray waves roll upon an icy shore. Isolated dunes dotted with tufts of stringy grass that sighs in the wind. Tense, taut—five men stand on the wind-swept beach. Five brains waiting to record whether two brothers are wise men or fools. Five pairs of eyes fixed in keen suspense upon a thing of wood and canvas perched near the top of a large dune. One man looks at his watch. A hasty glance—10:30 o'clock—he does not wish to miss sight of the thing now rushing down the hill. Ten—twenty—forty feet. It leaves the ground—flies a space of 40 yds.—lands. Twelve seconds tick themselves into history. Man has made his first dynamic flight in a plane under full control. The gulls weave in circles as if nothing had happened. It is December 17, 1903. From the slope of Kill Devil Hill on the coast of North Carolina, Wilbur and Orville Wright have traveled from obscurity to eternal fame in less than a quarter of a minute.

TWENTY-FIVE YEARS have passed since Wilbur and Orville Wright made their eventful flight from Kill Devil Hill—a flight that heralded a new transportation era, the limits of which no one can predict.

It would be erroneous to assert that to the Wrights accrues all credit for making flight possible. They would be the last to claim such recognition. They had, to say the least, the moral support of pioneers who in their time sought to establish the science of aëronautics. They also had the more or less positive advantage of access to data gathered by other apostles of flight. But the Wrights succeeded where others had failed. They verified facts, corrected errors, discovered new principles and applied them in practice. In short, the record definitely proves that Wilbur and Orville Wright through their ability to analyze with startling accuracy the theories of others, and because of their own creative genius, actually gave the airplane to the world.

The Wright brothers were not the first to build a craft that could be flown under human control. Nor were they the first to build a power plant by means of which an aircraft could be lifted from the ground. But—and this is the important part—they were the first to combine the elements of power and control in such a manner that

by Lester J. Maitland



1928 Night. Early spring. Fog hangs its tulle curtain over an airport. The boundary lights that skirt the field glow with a dull sheen. From a-top the hangar a flood-light's beam cuts its way through the fog to a plane that stands on a runway smooth as an ironing board. Whirling prop flashes in the light. The plane taxies down the line. Turns. Throttle open, it rushes up-wind and out into the night. The Air Mail has left. Nothing stops it. Winter or summer, day after day, night following night, from airports scattered throughout the country—"the mail goes through." Clockwork precision. Rigid schedules. The thing of wood and canvas has become a messenger of commerce.

Handicaps of distance removed. Oceans bridged by air. Mountains dwarfed. Battles fought above the clouds. Relief to sufferers brought on wings. Millions of miles flown each year by planes carrying passengers and mail.

All begun during the twelve seconds that, in 1903, ticked themselves into history.

dynamic and directed flight became possible.

The Wrights were not only the first to fly. They virtually were leaders in the movement to teach the science of flight. They established schools in this country and in Europe where stars who flashed across the firmament of early aviation learned their art. They laid the foundation for flying both as a pursuit in time of peace and as a terrific power of destruction in hours of war. The first Army plane ever made was built by them for the United States Government in 1908.

Aviation to-day is a normal and natural method of travel. We have watched the gradual but startling advancement of airplane performance with such keyed-up attention that our capacity for thrills has almost reached the saturation point. For that reason, it is not an easy task to fly the airplane back to what may be called its prenatal days.

If some one stopped me on the street and said he had discovered a method of establishing communication between earth and moon, I would pat him on the back and walk off hoping he would recover his mental balance. I could not conceive any way of communicating with the moon, any more than I could fly. There—I said it; force of subconscious habit. For centu-

ries on end man has made a practice of putting flight on par with the impossible, and the habit lingers. Persons who earnestly maintained that human flight could be accomplished were not regarded as prophets but as psychopathic cases. Those who had faith in balloons were classed as "ballunatics." Believers in the practicality of flying machines were victims of "aërophobia." They were all held eligible to draw free bed and board in insane asylums.

It was this inborn prejudice against the possibilities of air travel that the pioneers had to face in addition to baffling and complicated scientific problems. This prejudice prevailed even less than twenty-five years ago, when Langley, the Wrights, and others were at work. Professor Langley, one of America's leading scientists, was made a laughing stock because he foresaw the "universal highway of the air." Even the Wright brothers, while they were actually making flights of from ten to twenty miles, were regarded as a pair of Don Quixotes who had taken to flying windmills instead of fighting them.

It was a case of the world actually declining to believe its eyes. Of course, those who really did see the Wrights fly believed what they saw, but their stories received no credence. Newspapers ceased printing accounts of the Wrights' activities because their readers were not interested in fairy tales. It so happened that the Wrights did not care what the world believed. They were not interested in acclaim but in perfecting their plane. They may have figured that in due time the world would discard its doubts. If that were their assumption it proved entirely correct. The day came when leaders in America and royalty of Europe vied with each other in paying homage to them. No honor was too great —no praise too loud. The two brothers accepted these expressions of regard with the same indifference with which they had disdained the sly disregard to which they had previously been accustomed.

Before they succeeded, the Wrights encountered almost endless problems and disappointments. But in common with other aviation pioneers, flight was the dominant note of their existence. As the Play to Shakespeare, so Flight became to them the one and only thing. They lived it, dreamt it, thought it, practiced it. Nothing else had meaning. The opinions of their friends, demands of their business, their health, their comfort, even life and limb—nothing mattered but that paramount thing called Flight. Failures could not check their research. Half-formed convictions that flying could never be until the laws of gravity were repealed were not permitted to take hold in their minds. The microbe of aviation surged in their blood, and serum to overcome it was neither available nor wanted.

Aviation history up to the present resolves itself into three major groups: *First*, experiments and research leading to the building of the first practical machine and the dawn of the flying era; *second*, progress in the development of planes and motors under the competitive stimulus of war; *third*, increased reliability and performance of aircraft since the war and the subsequent adoption of the plane as a transportation medium on a par with railroad, automobile, and steamer.

So far as the first group is concerned, it is almost impossible to put finger on the exact point where man's efforts to conquer the air begins: with Dædalus, the man of myth who fashioned wings of wax; Archytas, sage of ancient Greece who built a "wooden pigeon"; Leonardo Da Vinci and his theory of how man could learn to fly; countless others who bumped their heads against the stone wall surrounding flight; or, finally, the comparatively small handful of men whose ideas ran in the right direction.

Cayley, Lilienthal, Pilcher, Hargrave, Chanute, Montgomery—exponents of "soaring" flight. Adherents to the theory that control was paramount. Maxim, Langley, Stringfellow, Henson, Ader—proponents of "dynamic" flight. Members of the school of thought holding that motive power was supreme. Wilbur and Orville Wright who believed that flight required almost parallel development of power and control. Glenn H. Curtiss and others who began their work after the Wrights had started flying and who, with

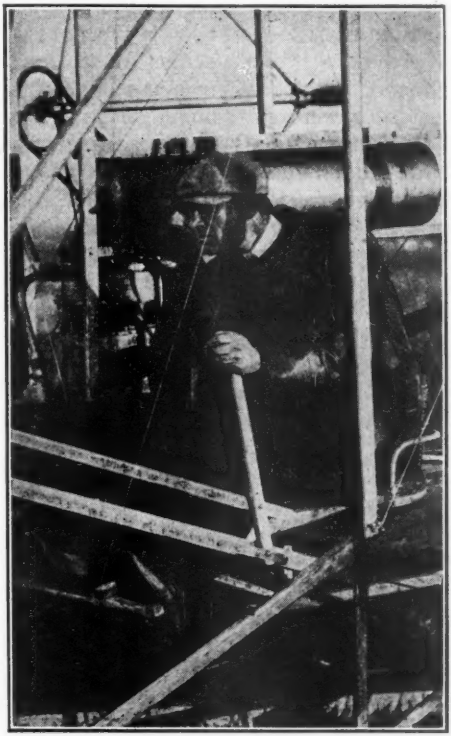
the latter, built the foundation for the intense aviation activity that eventually came to life.

From 1908 to 1914, American aviation went through a hectic stage of feverish sensationalism. The public, which only a few years before had held the idea of flying in contempt, now went on an orgy of aviation thrills. Exhibition flights were staged in every section of the country. Recklessness held sway. Pilots took all sorts of chances with their machines. Death rode in the cockpit with them.

Then came the World War and the picture changed. There is not the slightest doubt that the war did more for aviation during the period it ran its course than might have been done during ten times that length of time had peace continued. It moved aviation at least half a century ahead. Realizing its qualities of offense and defense, world powers spent money for airplane development with liberal hands. Billions were made available where only hundreds of thousands might otherwise have been obtained. There was, to be sure, much waste of time, men, and money, but out of these expenditures came the airplane as we know it today.

The *post-bellum* period produced conditions to which flying had some difficulties in adjusting itself. The airplane occupied a unique and not altogether advantageous position in the public mind. Its peace-time value was underestimated because its war-time value had been so thoroughly underscored. It slipped into its old position as a vehicle for thrills. Stunt flying once more came into vogue. The public was impressed by the airplane but leery of it. It caused too many deaths. Finally, thrill flying lost both flavor and favor. Air routes were established. Commercial flying concerns began doing business. They expanded and prospered. Then came the Federal law of July 2, 1926, which gave the country a permanent policy for the development of military and commercial aviation. Finally, in 1927, the air-mindedness of America became thoroughly harnessed and directed, owing to the epoch-making flights of Lindbergh and others.

There are, so far, three great years in aviation history—1903, 1908, and 1927. Of these, 1903 will always be the greatest, and, because of this, Wilbur and Orville Wright will always stand foremost among men who have contributed gloriously to aëronautic progress. They were inventors of great genius, aërodynamic engineers of rare ability, and airplane pilots of marvelous skill.



WILBUR WRIGHT

In 1910, neither pilot nor passengers occupied sheltered cockpits. Note his tense "flying face."

The real story of Wilbur and Orville Wright, the men, is difficult to compile. We know how they lived—quietly; how they worked—tirelessly; and how they, undaunted by countless heartbreaking failures, finally slashed the Gordian knot of problems surrounding the realization of human flight. But

beyond that knowledge lies scant information—only loose threads of anecdote and incident—about the human side of the two brothers whose combined skill, intelligence, and courage piloted the airplane out of the haze of dreams into the clear light of practical accomplishment.

The most outstanding feature about the Wrights as human beings was the partnership that existed between them. The ties that held them together were stronger than those of blood. It was a partnership that only death could break. This observation may have all the earmarks of Drury Lane. It is really a plain statement of actual truth. There was nothing melodramatic about the Wrights. They were as matter-of-fact as yardsticks, but in their own quiet and deliberate way they wrote into their lives a covenant of brotherhood as lasting as it was beautiful.

From early childhood Orville and Wilbur gravitated toward each other. As time went on, the bonds between them grew stronger. They became inseparable. Morning, noon, or night—where one was the other could usually be found. From this it must not be gathered that they were odd or seclusive. They were neither. They played with other children, and, as they grew older, mingled with other youths. But back of this fraternizing with other boys seemed to be a tacit understanding that the road to success and contentment was just wide enough for the two of them to travel arm in arm, and no wider. As a matter of fact, it is said that Orville and Wilbur, in the springtime of life, when most young men turn their thoughts toward matrimony, agreed not to marry. They never did. Wilbur was single at the time of his death in 1912. Orville, to this day, has never entered into marriage.

The Wrights have been called secretive, mysterious, enigmatic. Nothing could be farther from the truth. Reclusive?—No! Reticent?—Yes! They spoke only when they felt they had something to say—then, briefly and to the point. Both lived their real lives behind a Chinese wall of impenetrable reserve. That there was both beauty and charm behind that forbidding barrier is known to those few who were permitted to enter. The Wrights were not, as one popular but erroneous conception of them had it, a pair of mechanics whose grimy hands accidently strayed upon a solution of the problem of flight. They were gentlemen of culture and education; of discerning tastes and polished manners. They had, however, the disregard of genius for externals.

Secretive? Mysterious?—Study of their lives reveals that with the exception of the rather brief period from 1904 to 1908, when they conducted experiments to improve the flying qualities of their planes, there was no tendency on their part to throw the mantle of secrecy around their efforts. Even that secrecy was limited. It applied only to photographers and scouts for other airplane manufacturers. All others were welcome. The brothers have written and spoken freely and extensively of the various phases and results of their work. They have, it is true, said very little about themselves. In telling how they fought the obstacles before them, neither has recorded his mental or physical reactions in hours of trial, trouble, or triumph. This suppression of the human element has made the world see them as two smoothly functioning engines geared together and working as one.

This impression is, in a sense, correct. The Wrights, while not automatons, were two splendid intellectual machines so finely adjusted and attuned to each other that they worked as one. Their mental equipment dovetailed thoroughly. Their interests and inclinations ran parallel. Though one was four years older than the other, they were more identical than twins. For all practical purposes they were a cosmic unit. There was peace and harmony within that unit. They had differences of opinion, but these were adjusted in debate. They would argue for hours but never quarrel. Every argument produced something constructive. They would work and never murmur over the division of their tasks.

Illuminative of their relationship is the episode of tossing a coin to determine who would be the first to pilot the plane built in 1903—the aircraft that proved that the

problem of dynamic flight had been solved. There was room for only one man in the machine. Wilbur wanted Orville to fly, and *vice versa*. Neither felt he was entitled to priority because he had contributed more than the other. So they spun a coin to decide the issue. Orville Wright lost—but won, as Wilbur, on the first attempt, failed to get off the ground. The second try was Orville's turn, and, as all the world knows, he flew.

THE WRIGHT PLANE IN ITS FIFTH YEAR
With Wilbur Wright at the controls, at Pau, France, in 1908. Note the landing skids.

It is not possible to say whether the advance of aviation would have been more rapid than it has been had Wilbur Wright remained alive. Not that his genius was greater than that of his brother, but he was an essential and highly necessary half of the unit that was "The Wrights." Orville Wright, to be sure, carried on and is still carrying on, but those who know him well say that his brother's death has left an empty space in his life that time will never fill.

Orville Wright lives in Dayton, in the home that he for many years shared with his brother. His interest in aviation has not abated, but the man who was first to pilot a plane flies no more, and the spot on the North Carolina coast where the initial conquest of the air was scored a quarter of a century ago is a place on which he has no desire again to set foot. He carries his fifty-seven years with unusual grace. His medium-sized figure is still muscular and slim; his eyes, under heavy brows, still clear and keen; and his mind a storehouse of aviation data, which he affably places at the disposal of those who are drawn to him by their interest in flying. He seldom speaks about the past and then only among friends. The curtain of reserve that hid the real Wrights about twenty-five years ago is drawn as taut to-day as it was in 1903. Until her recent marriage, Katherine, his only sister, made her home with Orville. She appears to be the only one among the Wright children who played a real rôle in the lives of their distinguished brothers. Between 1899 and 1903, when the Wrights labored to penetrate the mystery of flying, she aided them in compiling the data that finally led to success.

The Wrights did not reach their goal in spurts of brilliant flashes of inspiration. They won by steady and stubborn application to their task. They were plodders and had the patience of those to whom failures and difficulties are normal and expected handicaps. The Wrights possessed the unconquerable power of those who might turn to Job as their patron saint—the power of patience that flows as steadily as the current of a stream.

Other men—before, during, and since the time the Wrights conducted their early experiments—have seen in aviation the path leading to a new empire of transportation. They dreamed that continents might be linked by air. Not so the Wrights. Being of intensely practical turns of mind, the brothers believed that one result

attained to-day, no matter how meager, is better than ten results prophesied for the morrow.

They held that the airplane, like all other things in infancy, had to crawl before it could walk, and were utterly opposed to wild flights either in practice or in fancy. In 1907, for instance, there was some speculation over the possibility of long-distance flights. Wilbur Wright was asked if he thought airplanes would ever fly from New York to Paris.

"No," he answered, "I do not believe such flights will ever be feasible. Limitations of motors and wind conditions make them impossible."

At the time Wilbur Wright made this observation Charles A. Lindbergh was four years old.

The Wrights were cautious—cautious in venturing predictions, cautious in making plans, cautious also in putting their plans into execution. They believed that permanent progress is best attained through gradual advancement. Their method in the development of the airplane is characteristic evidence. They made their moves with the slow, calculated precision of expert chess players. They were not to be hurried any more than they were to be discouraged.

It is typical of them that they, after their first flights in December, 1903, should return to their home and for more than four years conduct experiments to improve their aircraft, rather than proudly exhibit their machine to the world, as they might with perfect justification have done. The Wrights cared more for the perfection of their plane than the opinion of the multitude. That the news of their flights was received with more than a grain of salt in this country and abroad did not spur them into submitting public proofs of their success. They let the gossips cackle and tended to their knitting. It was Wilbur Wright who declared that he had no desire to emulate the parrot—"the bird that talks the most and flies the least."

The measures of caution they applied to all their activities they applied also to flying. They did not go in for "stunting" and were utterly opposed to the taking of unnecessary risks. When Count de Lambert, who was one of the Wrights' star pupils in France, sent the thrill mercury of Parisians to the fever point by flying over the city and around the Eiffel Tower, Orville Wright, instead of praising the intrepid pilot, said that the flight was "the action of a fool." He knew that the limitations of aircraft motors of the day did not permit that type of flying and he believed it best to fly within bounds.

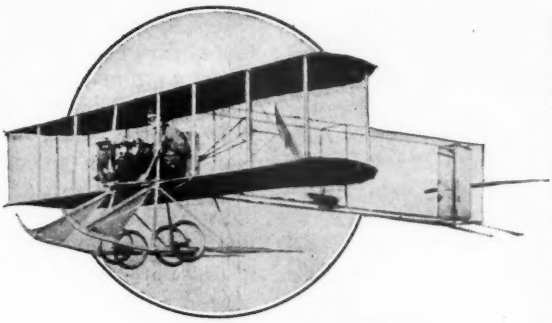
This does not mean that Orville Wright is a safety-first pilot. He has not alone great courage but also a vast amount of natural flying ability. He has put both to extreme tests on several occasions when the progress of aviation demanded flights more hazardous than stunts. A case in point is the experiment he conducted in 1912 to determine the angle a plane may safely attain before it reaches the "stalling point." By "stalling" is meant the climbing angle at which the "lift" on the wing is no longer sufficient to maintain the plane in the air, and when the speed of the motor is inadequate to overcome the forces of gravitation.

Between 1908 and 1912, many lives were lost in crashes here and abroad. No one seemed to understand just what caused them. Orville Wright believed he knew. He stepped into a plane, took off, and at 300 ft. deliberately began to increase the angle of his climb. When he reached what we now know is the stalling angle, his ship went into a stall, followed by a tail-spin that he did not get out of until he was less than 100 ft. above the ground. In other words, Orville Wright deliberately placed his life in the balance to test out a theory that has since been of great value to pilots. The immediate result was that the Wrights altered the angle of incidence on their planes so as to increase the range of safe climb from one of 4° to one of 8°.

The Wrights were thoroughly devoted to their work and had few interests outside of their field of activity. Social functions held no appeal. When, in 1908, they entered upon the highway of success, their mode of life continued exactly as it had been. Their personal requirements were simple, almost ascetic. They did not go in for dress. Both were always scrupulously

clean, but neither regarded sartorial nicety as a requisite.

Where other fliers gravitated toward theatrical flying clothes, the Wrights flew in ordinary business suits. Hero worship was wasted on them. They were as casual on the flying field as if aviation, instead of being the newest wonder of the universe, were as old as the hills. When, for instance, Orville Wright in 1908 demonstrated the plane ordered by the United States Government for the Army, he launched this epoch-making flight, which broke several world records, as if nothing unusual was about to happen.



A LATER DEVELOPMENT

Wheels have been added to the skids of this baby Wright. The direction, both horizontal and vertical, is controlled by rudders at the rear.

Thousands of people gathered at Fort Myer, near Washington, to see the first public flight of the new Army plane. President Taft was there. Representatives of administrative, diplomatic, and social Washington attended *en masse*. It was a gala day. After the plane had been pushed out of its hangar and he had satisfied himself that everything was shipshape, Orville Wright made his personal preparations. First, he tied a piece of string around his cap so that it could not blow off. Next, he calmly took off his coat, entirely unmindful of the thousands who were watching him, removed his cuffs—they wore them demountable in those days—took his place in the pilot's seat, and uttered a laconic "Let her go" to his assistants.

After his flight, Orville Wright received a shower of congratulations from President Taft and other dignitaries. President Taft was deeply interested in aviation but doubted he would ever go up.

"I am not of flying size," chuckled the President.

Wilbur Wright was as unceremonious as his brother. On his first visit to France he lived in the hangar that housed his plane. He was tall, and the pockets of the clothes that covered his rather gaunt frame invariably bulged. Whenever repairs had to be made—and at times they had to be made quite frequently—Wilbur resorted to his pockets. They were veritable repair kits, full of wire, small tools, bolts, screws, and other odds and ends.

The older Wright spoke in short, staccato sentences and with an extremely positive inflection in his voice. He had a way of looking straight into the eyes of persons who talked to him that was disconcerting and often tended to cut conversation short. Like his brother, Wilbur never smoked nor did he drink. Both were also strict observers of the Sabbath. The story is told that they refused to sell planes to men who drank because they did not believe that alcohol and altitude make a good mixture. In this they were perfectly right. Nor would they permit exhibition pilots, who flew planes controlled by them, to give demonstrations on Sundays.

Neither believed in wasting words even upon each other unless they felt that there was cause for conversation. This was shown on several occasions, but one is particularly outstanding because it reveals the practical side of their partnership. In the late fall of 1908, both brothers were on hand when they were presented with the Michelin Prize. This consisted of about $4,000, which was given them in bank notes.

"Thank you," said Wilbur Wright as he accepted the award.

Then he calmly counted the notes into two stacks, gave one to his brother and put the other into his own pockets. Orville nodded, Wilbur nodded. Neither said a word.

Wilbur Wright stood in eternal fear of

typhoid fever. At Kitty Hawk, he always insisted upon having a gallon of boiled water every day. He would drink nothing else. The irony of fate decreed that the typhoid germ should cause his death in 1912, following a visit to Boston. He might have lived had not his health been undermined at the time. His friends claim he had become upset over expensive and protracted legal battles that he and his brother had been compelled to enter into in order to protect their patent rights, and that this had destroyed his resistance.

The lives of the Wrights up to 1900, when they began their glider experiments, were almost as level as the bottomlands of the Miami Valley, in Ohio, on which they were spent. Their parents moved from Indiana to Dayton about 1870. Here Orville was born in 1871. Wilbur, four years older, was born in Millville, Indiana. Their mother, Susan Katherine Wright, died while they were still very young, and the burden of their upbringing, together with that of their sister, Katherine, and two other brothers, fell upon the shoulders of their father, Milton Wright, Bishop of the United Brethern Church. Reared as they were within the shadow of the church, the Wright children grew up with firm religious faith. Bishop Wright also supervised their education, and it is known that he was bitterly disappointed when Wilbur Wright, on completing high school, decided he would rather work than go to college. He was similarly grieved when Orville Wright announced that he intended to follow the course taken by his brother.

Every boy has flown a kite or owned some toy that flies. The Wrights were no exception. They began their juvenile flying operations in 1878, when their father gave them a toy helicopter. This toy made an immediate and lasting hit with the two youngsters. They called it a "bat." Its effect upon them was more lasting than the "bat" itself. It broke, as toys will in the hands of boys. But the Wrights went ahead and made bigger and better "bats," until they discovered that the bigger the "bat" the feebler its flight. They then turned to kites and became expert kite fliers.

It is impossible to say just how important a place their kite operations occupied in the aviation enthusiasm of the Wrights a few years later. One thing is certain. They made a deeper study of kite flying than is common among boys. However, that may have been a natural expression of their trend of mind, which is of the type that never rests until it has analyzed the relationship between cause and effect.

At any rate, it cannot be recorded that then and there the Wrights made up their minds that they would learn to fly. That they shelved their kites when they felt they were too old to play with them would seem to indicate that they looked upon them as toys below the dignity of boys of their age. However, it may be that their kite, like Benjamin Franklin's, was the conductor that sent the lightning flash of an idea into their subconscious minds. Who can say?

Orville and Wilbur turned from kites to mechanics and immediately forged the first links of a chain of interest and activity that tied them closely together and never left their grasp. They were natural-born mechanics, and soon owned their own miniature machine shop, where they made not only various contrivances but also most of their tools. Among other things, they built a telegraph system. It worked. That they did not care to go to college did not mean that it was irksome for them to study. On the contrary, both boys were tireless readers. Books on mechanics or semi-scientific subjects interested them most. Incidentally, they mastered the art of printing. They learned this by setting type for a periodical published by Bishop Wright in connection with his church work. They even built a press of their own out of odds and ends, and for a time ran a newspaper. Their contributions to journalism have long since passed into oblivion, but the press is still in existence and workable.

The Wrights left the profession of Dana and Greeley to seek fortune in making bicycle repairs. They were successful almost from the start. Bicycles were climbing toward their height of popularity in those days, and the Wrights, from running

a repair shop, soon became dealers and manufacturers. They built up a splendid and well-paying concern as they combined business ability with mechanical skill.

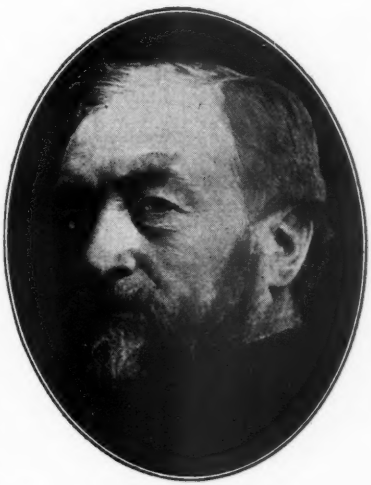
The brothers might have gone on manufacturing bicycles and never created a ripple on the surface of the pond of human existence if it had not been for a brief item printed in a Dayton newspaper. It reported that Otto Lilienthal had met his death while experimenting with a glider in Germany. This was in 1896. Orville Wright was at that time suffering from an attack of typhoid. It was Wilbur who read the news of Lilienthal's death. He was impressed by the tragic fate of the German scientist just as the latter seemed to stand on the threshold of success. The death of Lilienthal and the current of thought started by this news in Wilbur Wright's mind were the sparks that re-ignited the interest that he and Orville took in flying during their childhood days.

A remark made by Wilbur Wright in 1908, gives credence to this interpretation. He said: "The brief notice of his [Lilienthal's] death which appeared in the telegraphic news at that time, aroused a passive interest which had existed from my childhood, and led me to take down from the shelves of our home library a book on 'Animal Mechanism,' by Professor Marey, which I had already read several times. From this I was led to read more modern works, and as my brother soon became equally interested with myself, we soon passed from the reading to the working stage."

Those who believe that future events cast their shadows before them may discover a significant omen in the interest taken by the Wrights in kite flying during their childhood days. They may find it equally significant that the bicycle shop in West Third Street, Dayton, where the Wrights conducted their preliminary aviation research, and where the plans for their first power plane were drawn, had the number "1927" upon its door. Little did the Wrights or those who entered that door to watch their work realize that 1927 will forever stand as the greatest monument to their patient and painstaking labors.

The cycle of aviation experiments and inventions by the Wrights starts in a Dayton machine shop and ends in the far-flung corners of the earth. It covers a period of sixteen years, beginning with the announcement of Lilienthal's fate in 1896, and closing at the death of Wilbur Wright in 1912. This cycle of events falls into four distinct periods:

First, 1896 to 1900—Studies and experiments into the theory of flight, leading the Wrights to believe they will be able to construct an airplane that will fly. *Second*, 1900 to 1903—Gradual development in gliding operations at Kill Devil Hill, resulting in the building of first airplane flown under control in dynamic flight. *Third*, 1903 to 1908—Devoted by the Wrights to improving planes and motors, to protecting their inventions by patents here and abroad, and to attempting to interest the United States Government and others in its purchase. *Fourth*, 1908–1912—The four great years in aviation, when the Wrights head the procession of crusaders who set out to demonstrate and expand the possibilities of human flight. Each of these periods is interesting and important. Before I discuss them, I believe it is essential to afford the reader a comprehensive view into research undertaken by other men who preceded, or were contemporaries of, the Wrights, and with whose efforts the final



SAMUEL P. LANGLEY

success of aviation is irrevocably connected.

To understand the Wrights thoroughly, it is necessary to understand what had gone before them—to get at least a glimpse of the picture that formed the background against which they worked.

To get a clear idea of that picture we must turn back the pages of time to 1810, when Sir George Cayley conducted his experiments in England. Sir George discovered many valuable and workable theories. The most important of these was that a cambered wing—namely, a wing with a curved surface—has greater lifting power than a flat wing. He built several gliders and laid down a set of principles that, to quote one student, have been "singularly prophetic." Cayley lived at a time when steam power was asserting its influence. His knowledge of lift was sufficient, however, to make him realize that any steam engine powerful enough to propel one of his gliders would be too heavy for that glider to lift.

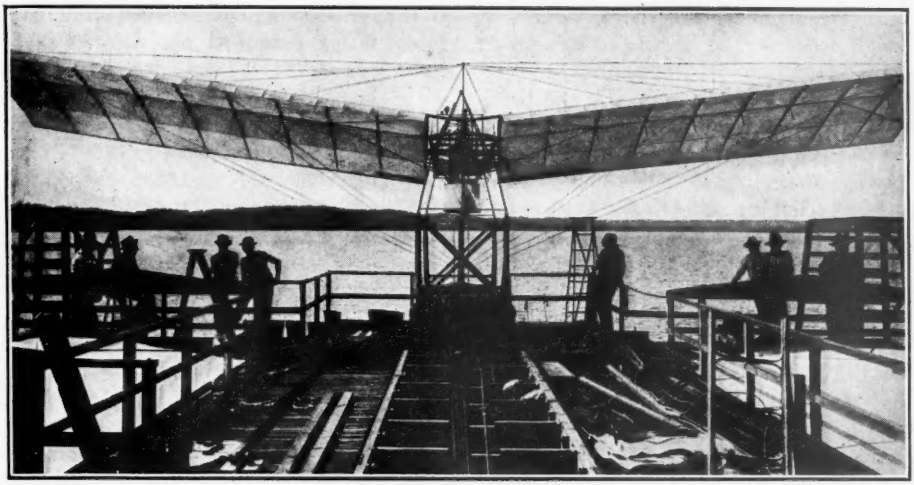
He set out to find other means of obtaining power and tested out the "rocket" principle, which was recently tried quite successfully on an automobile by a German inventor. Cayley intended to propel his craft by means of a series of gun-powder explosions. When ready for the trial flight, Sir George induced one of his servants to act as pilot. Just as the craft got under way, the man was too frightened to carry on. He jumped out, broke his leg, and wrecked the plane. Sir George conducted no further experiments.

Almost two generations later, John Stringfellow and William Henson, two Englishmen living at Chard, sprang into prominence as aviation promoters. They made a glider and equipped it with a light steam engine. It was a fine-looking craft. Its only drawback was that it could not fly. Henson and his colleague had previously formed the Aërial Steam Transit Company. Announcements were sent out that they planned to engage in "carrying letters, goods, and passengers by air." Their commercial air line never began service. Henson, discouraged, took boat to America, thus showing his lack of faith in announcements on illustrated posters issued by his own company showing one of the A. S. T. C. air liners flying over China. Stringfellow continued his efforts and, in 1848, appears to have constructed a machine that actually left the ground. However, it never really flew. It is now in the British Museum.

Cayley, Henson, and Stringfellow may have been over-ambitious in the sense that they were determined to attain dynamic flight before they had thoroughly mastered the art of controlled flight. At least, in sharp contrast to their efforts, stand the studies of Otto Lilienthal, who at the age of thirteen, together with his brother, Gustavus, began delving into the art of flying. These two brothers may truly be called the Wrights of Germany, although Otto, by far, overshadowed his brother as a research genius. Gustavus ceased flying experiments following Otto Lilienthal's death.

Lilienthal, it is believed, came within a narrow margin of finding the solution of flight. It is probable that but for his unfortunate death in 1896, he might have succeeded in flying one of his machines with the aid of a two-and-a-half horsepower motor. Lilienthal concentrated on control, but the most conspicuous feature of this theory was that it underestimated the value of inherent airworthiness of the craft itself and placed all control, including that of balance, in the hands of the pilot. Lilienthal made numerous glides in the course of his studies. He flew from heights varying from 50 ft. to 100 ft., and covered distances of more than 250 yds. In 1896, Lilienthal built an ornithopter in which he hoped to demonstrate actual dynamic flight with the aid of his light motor. The German scientist never had a chance to test it. A few days before he planned to take it off the ground he crashed in an old glider in which he was experimenting with a new elevator. A wing section of the old machine gave way as Lilienthal soared 50 ft. above the ground. He plunged toward earth. It was the end.

Similar was the fate met by Percy S. Pilcher, an Englishman, who studied Cayley's and Lilienthal's theory of flight.



READY TO LAUNCH THE LANGLEY PLANE, OCTOBER 7, 1903
This first test failed because of an accident in launching. The plane was wrecked on its second trial on December 8th. Nine days later the Wrights flew at Kitty Hawk.

Like Lilienthal, he was an engineer. He took up flying early in 1895, and died in a glider crash in 1899. He never experimented with power planes. Belonging to the time and school founded by Lilienthal and Pilcher was Lawrence Hargrave of Sydney, Australia, first man in the antipodes to discover and apply the principles of soaring. He limited his activities to kite flying but collected a vast volume of data that attracted wide attention.

Several years before Pilcher began his studies—early in the '80's, in fact—Sir Hiram Maxim, who even at that period had earned fame as an engineering genius, took an interest in aviation. He built a flying machine that had a wing spread of 5,400 sq. ft. and a span of 104 ft. The contraption weighed 8,000 lbs., including its power plant, which consisted of a steam engine capable of developing 360 horsepower. This monster of the air, exceeded in size only by the celebrated Barling Bomber built for the United States Army Air Service in 1923, never flew. It was wrecked by the wind as it stood on the field.

In France, Clement Ader, another famous engineer, financed by the French Government, conducted experiments that resulted in the construction of a monoplane equipped with a forty horsepower motor that weighed 7 lbs. per horsepower. The complete machine tipped the scales at 1,100 lbs. Ader's plane was wrecked on its first flight on October 9, 1890, when it achieved what has been defined as "a glorified jump" of about 150 ft. The French Government withdrew its support and, on top of that, prohibited Ader from obtaining private capital in order to continue his experiments. Ader's project died. His ideas were shelved. It was not until years later, after the Wrights had electrified the world with their accomplishments, that France remembered Ader and gave him his due.

To return to America: a survey of early flying research in the United States, immediately prior to and during the time of the studies conducted by the Wrights, reveals that the first serious investigation of flight in America was undertaken by Thomas A. Edison. The Wizard of Orange made, however, a very limited study of the possibilities of aviation. He approached the problem almost purely from the angle of power requirements. He did not proceed very far. Either he was too busy with other things or else he became discouraged; at any rate, Edison's epitaph on his experiments was: "We will never be able to fly

until an engine of fifty horsepower that weighs less than one pound per horsepower can be found."

Mr. Edison was conservative and pessimistic. He did, however, strike to the very core of the problem that engineers of today are struggling to solve—namely, how to build reliable motors of great power and little weight.

The research conducted by Mr. Edison into aviation is interesting; but it cannot be said that it has any bearing on the studies and final discovery made by the Wright brothers that led to success. To find these contributing factors we must turn to Dr. John J. Montgomery of California, Octave Chanute of Chicago, and last, but far from least in the order of importance, the eminent and venerable Dr. Samuel Pierpont Langley, upon whose experiments fortune seemed to smile until the very moment of their almost-successful culmination, when triumph was transformed into tragedy.

Some day, grateful posterity may erect a memorial temple to the heroic pioneers who had the moral courage to preach the doctrine of human flight and the physical valor to risk their lives that their theories might be tested. If such a temple is ever built, a hallowed niche within it will bear the name of Samuel Pierpont Langley. He is the most pathetic and the most prophetic figure among the men whose studies were of great importance. Langley died for aviation. What crushed him was not the impact of a crash. The ribald jeering of the mob, the acid sarcasm of men of science, and the trick of fate that turned his crown of achievement into an evanescent soap bubble made Dr. Langley weary of life. He died of a broken heart.

Were this a treatise on the scientific side of flying, I should discuss in great detail the important discoveries made by Dr. Langley. He analyzed and catalogued the problems of mechanical flight from lift forces to pressure centers—from the effect of wind velocities to propellers. His highly trained and exceptionally competent mind considered each and every phase of flying with the thoroughness of a microscope. But inasmuch as these articles are intended to deal entirely with the history of actual flying rather than with the theories that made it practicable, I shall deal no further with the scientific side of aviation but chronicle events and the men behind them.

Professor Langley, who was one of the moving spirits of the Smithsonian Institution, began his research into aërodynamics in 1887. He was aided financially by William Thaw of Pittsburgh. His tests employed the use of his now famous "whirling table" on which he measured pressures of various sorts. Following preliminary experiments, which ended in 1891, Dr. Langley began making miniature flying machines that he called "aërodromes." He built six of these. One was operated by carbonic acid gas; the rest had miniature steam engines. The first five models produced indifferent results.

It was not until the sixth "aërodrome" was tested that Professor Langley felt he had made headway. This machine was tested for the first time in May, 1896. It flew 3,000 ft. over the Potomac River near Washington. The craft weighed 27 lbs. Its wings measured 14 ft. from tip to tip. Its power plant consisted of a steam engine producing one horsepower. Langley was elated. Those who had sneered at his efforts—it was almost worth a man's reputation for sanity to think of flying in those days—stopped sneering for a time. Congress, upon recommendation of President McKinley, appropriated $50,000 to be used by Dr. Langley in building a man-carrying machine.

Dr. Langley, somewhat reluctantly, agreed to construct the craft. Well advanced in years and having devoted much time to aviation, he was satisfied he had proven the correctness of his contention that man could fly. Let others continue the work he had begun. He listened, however, to the demands of his country and bent his energies to the task before him.

Ceaseless toil in laboratory and workshop—long hours, blending into weeks, months, years. Finally, on October 7, 1903, great crowds assembled on the banks of the Potomac to watch Langley's man-carrying machine's first flight—some came to cheer, others to jeer—the huge frame

of his aërodrome perched on a houseboat—Charles L. Manley in the pilot's seat—the craft moved forward—stalled—plunged into the water. A flaw in the launching apparatus caused the wreck. A second attempt was made on December 8, 1903. Again the launching apparatus tripped the plane. Nine days later Orville Wright flew at Kill Devil Hill.

The mishap on December 8th ended forever Dr. Langley's work. He never had a third opportunity to demonstrate whether his plane could fly. Press and public made him the butt of ridicule. Congress declined to make further appropriations. Only his closest friends stood by Langley during the harrowing period that followed. It came to an end in 1906, when this great inventor was carried to his reward on the wings of Death. Many are the lines written *in memoriam* of his work, but the greatest testimony to his skill was probably the flights actually accomplished by his aërodrome with Glenn Curtiss as the pilot in 1915. Then songs of praise were sung for Langley by his erstwhile critics—but Langley was dead.

Four years before Dr. Langley began his aviation research, Dr. John J. Montgomery set out to wrest from space the secret of flight. Like Langley, he was a man of science. He held the chair of physics at Santa Clara College, situated in the city of that name in California. Dr. Montgomery was a wiry little fox terrier of a man. He weighed only 130 lbs., but most of them were brains and courage. He built gliders and flew them. The climax of his studies came in April, 1905, when he employed James Maloney, a parachute jumper, to do a trick that never before had been done with a heavier-than-air machine. A glider, with Maloney aboard, was attached to a balloon that ascended to 4,000 feet. Maloney cut the glider loose and spiraled to earth. The glide lasted twenty minutes and the craft landed safely in a field previously designated by Professor Montgomery. More glides followed. Maloney even succeeded in looping and doing other tricks. But not for long. Montgomery and his pilot were killed in crashes before the end of 1905.

There remains, aside from the Wrights, but one more of the men who prior to the beginning of the present century tried to explore the pathways to flight. He was Octave Chanute, born in France but brought by his parents to this country at the age of six. Chanute became famous as a railroad construction engineer. Well beyond middle-age when he began to study aviation, he wrote his first book on aërodynamics in 1891, and built gliders—but never flew in one himself. Associated with him was A. M. Herring, who later on was to play a leading rôle in aircraft progress. Herring had met Lilienthal in Germany and used his glider. Chanute's experiments were conducted on the shores of Lake Michigan and ended in 1896, when Chanute felt he had gained all the information on flying to be had from that particular source. He built several biplanes as well as multiple-gliders.

And thus draws to a close the chapter in aviation that leads up to and occasionally beyond the period where Orville and Wilbur Wright, in their bicycle shop in Dayton, on the flat expanse of Huffman prairie, on a lonely spot on the coast of North Carolina, pour their hearts and minds into their efforts to invent a machine on which man may travel through space with speed and safety.

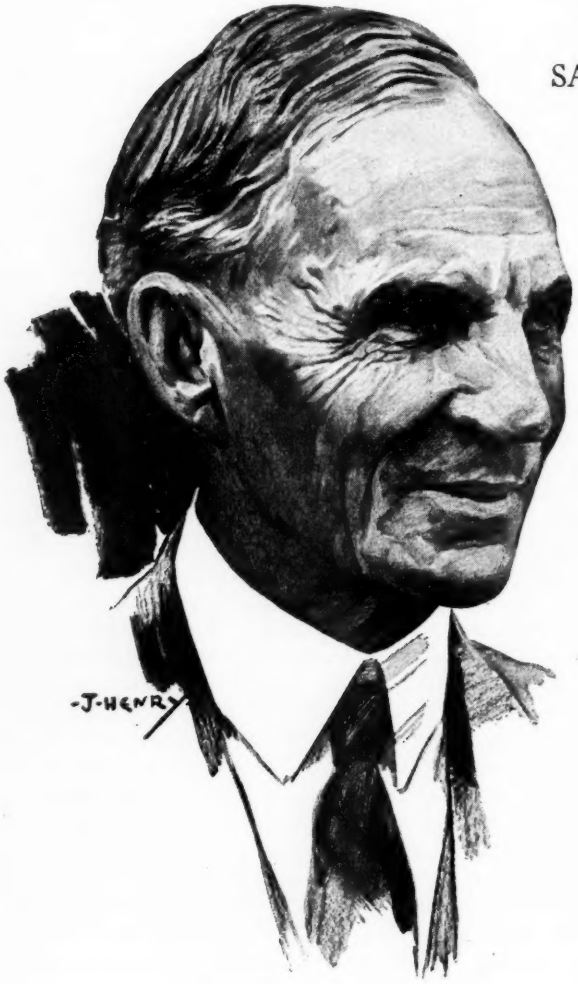
Blind to the grim tragedies that spelled the end of many of their predecessors, heeding not the barbs of ridicule held ever ready by those who scorned the theory of flight, panoplied against dismay over problems that seemed insoluble, with the partially completed works of others as their guide and with patience as their principal tool, the Wrights set out to master the air. In all the history of aviation there never will be a greater story than that of how the two brothers made their dream come true.

Next month: How the Wrights Developed Flying

Henry Ford Talks About Edsel

Interviews Given to

SAMUEL CROWTHER



AMONG THE largest of our industrial corporations is the Ford Motor Company. It is easily worth a billion dollars. Some bankers think it could conservatively be recapitalized at two billion dollars and would be a good investment at the price. The other large corporations of the country have many thousands of stockholders. The Ford Company differs from all these in that it is a partnership in all but legal form. There are only two partners—a father and a son.

This is a remarkable situation. There has never been anything quite like it. We have had in this country only a few cases of father and son working together and answerable to no one but themselves. John Wanamaker and his son Rodman were in business together, and the son succeeded the father. J. Ogden Armour succeeded his father, P. D. Armour, and the Swifts are in actual control of their father's affairs. In banking, the family succession is more common: George F. Baker, Jr., works with, and will succeed, his father, and the Morgan line has remained unbroken. But in none of these cases have the father and son been the sole owners.

There are a few family businesses of noteworthy size, such as the Gimbel stores and Macy's. But Marshall Field, Jr., went into banking instead of merchandising, while Averell Harriman took to banking instead of railroading. Nearest in analogy to the Fords would seem to be John D. Rockefeller and his son, but actually there is no resemblance in the situations, for neither of the Rockefellers is in business. Their fortunes are in securities. The Fords have no invested fortune at all.

And Edsel Talks About His Father

They have a going business that is worth what it will earn. When it closes down it is an immense liability.

Outside of this business the Fords have very little. Their personal property not in the business probably amounts to less than five million dollars and certainly to less than ten millions, and this is mostly in land and residences. Their holdings of securities are comparatively trifling.

Thus, the position of Edsel Ford is truly extraordinary. He is not in the ordinary sense a rich man's son. But while the vast company is a tremendous money-making engine it is not self-managing. It is not an automatic machine—no successful business is. Badly directed, it could lose money faster than it ever made it. The ramifications of the Ford industries are so far-flung that if anything suddenly happened to them only a genius could save the country from going into a panic—and not even a genius could save it from going into a depression. There is no likelihood that anything will happen to the Ford industries. But the responsibility of seeing that nothing does rests on the shoulders of just two men—Henry Ford and his son Edsel—and in the natural march of events eventually it will rest only on Edsel's shoulders. The public has never had much chance either to know or to appraise Edsel Ford. His picture has quite seldom appeared, and he is known by sight scarcely outside of Detroit. Even there he can drive around alone without being bothered, and quite often does so.

This is only for the time being. His future is not in his own hands. He is bound to become known. His interests are so very large that he cannot stay out of the public

eye, for, whether he will or no, he will become a public character. Further than that, it is not the habit of Americans to leave their public men in any middle ground. They either like them or dislike them.

Henry Ford is the best-liked man in the United States—possibly in the world. The number of his enemies is negligible as compared to the number of his friends. Whatever he does is important—because he does it—and is always front page news. Edsel Ford is expected not only to be the son of his father but also to swing a job very different from his father's and in some ways more difficult. How then does Edsel Ford measure up? What kind of a man is he?

There are two very significant lines of proof as to Edsel Ford's ability. The first has to do with the opinions of those who work with and under him, and the other has to do with his father's opinion. I have been in and about the Ford organization quite a good deal over a period of about ten years. I have met many hundreds of men in high and in low positions. Some of them have grumbled very freely, for it is in the nature of men to grumble and gossip about their jobs. It is a harmless and inalienable amusement. I have heard what is wrong about nearly every man and every thing in the Ford Company, just as I have heard the same sort of thing in nearly every other company with which I have come in contact. But I have never heard any ill-natured criticism of Edsel Ford. This is indeed remarkable, for, owing his position primarily to the accident of birth, he makes a fair target.

The second proof of his ability is his father's confidence in him. This ordinarily could be discounted, for a father wants to think well of his only son. With Henry Ford this sentiment would go so far and no farther. He views his business as a public service, and if he found that his son could not manage it, then he would conclude that he was serving neither the son nor the public by permitting him to continue.

Edsel Ford is not a newcomer in the company. He has been shouldering heavy responsibilities for a long time. It may be news to many to know that he has been actively in the management for sixteen years. He has been in and about the company ever since he was born. All the great developments have taken place since he took his first job and most of them since he succeeded his father as president, in 1919. He had become secretary in 1915, and, since 1920, has been treasurer as well as president.

Unlike most young men, he did not grow up apart from his father's affairs and then later, at his convenience after finishing college and the "grand tour," drop in to see how "the pater" was getting along. He has always been in the business. He was not born a rich man's son. When Edsel was born, in 1893, Henry Ford was getting $15 a week from the Detroit Edison Company, and was working at night on his invention. The family lived in a two-story brick house on Bagley Avenue, Detroit, and there Edsel grew up and went to public school. He was born with automobiles and he has always lived with them. As he said to me:

"I did not know anything about the first automobile my father made. He had been working on it for a year or so before I was born, got it running when I was a year old, and sold it when I was about three. My father has told me that I rode in it, but of course I now recall nothing about it. I remember that my father worked and that people came to see something that he made, but my first clear recollection has to do with the '999' that Barney Oldfield raced and that was the real start of our business. My father and Tom Cooper built it in a little brick shop on Park Place. I was there every day.

"We were building to win a race out at the Grosse Point track, and that was all the family talked about. Winning that race was all I thought or talked about—it would have been a big thing for any boy. We have the '999' and I have driven it, although I have never pushed it to any speed. It has four cylinders and develops eighty horse power. The engine was never covered, the chassis had no body—only a seat—and of course it never had a muffler. I remember that car in the race—a cloud

of dust, shooting fire and making the most terrible racket any human being ever heard. We won the race.

"Soon after that my father had a motor car company of his own, and I suppose that gradually we began to have more money, for I went to the Detroit University School when I had finished the elementary school. And also I was allowed to have any kind of an automobile I wanted, and I did have every new model that came out. These must have run into money—although more than likely my father would have bought them anyway, for he has always made a practice of buying all kinds of automobiles and eventually taking them apart to see how they are made and what they are made of. But my father has never thought of money as money. He has always seemed to have enough for what he wanted to do, and I have never heard him talk about having too little or too much. In fact, he does not talk about money at all."

In 1912, Edsel Ford was graduated from school, and he did not want to go to college. He wanted to go right into the business. Of course, that followed his father's hopes. But, being a believer in the school of experience, his father counseled getting some experience:

"I told Edsel," he said, "that he ought to know everything that was going on in the place. We had then moved to Highland Park from the Piquette Avenue plant. We had been making only Model T for four years, and our real business had started. In fact, in 1912, we made 70,000 cars—which were more cars than any one had up until then thought it possible to make.

"I told Edsel that he would not learn all he ought to know by actually working in the shops, but that he would do better to spend two or three years just wandering around, seeing how everything was done and getting acquainted with the men—that he would learn more in that way than in any other."

That, when you come to think about it, was a canny way of starting a young man into business. The historic method would have been to send Edsel into the shops and have some pictures taken of him in overalls. Then, in due time, he would have been said to have worked his way up. But Henry Ford, although a mechanic himself, knew that it would not help his son to be a mechanic. It would have taken many years for him to become an all-round mechanic, and those years would have been wasted—for the eventual job of the son was administration. Henry Ford started as a mechanic—otherwise, he could not have worked out his invention. But also, he most remarkably developed the talent for administration. He is a many-sided man; for instance, he can go into the most intimate mechanical details not only of the automobiles but also of the machinery for making them and at the same time keep a detached perspective on the whole great business. And so, in his off-hand way, he put his son into learning what he had to administer instead of doing the obvious thing of having him learn a lot of jobs. Then he began to put responsibility on him.

"He hardly ever tells a man how to do anything," said Edsel, speaking of his father. "He just tells him what is to be accomplished. The man has to work out the matter for himself, and my father is the most patient man in the world about mistakes. He lets a man make mistakes even when he knows in advance that a mistake is going to be made.

"Of course, if the results of the mistake are going to be too disastrous and affect the public, then he steps in at the right time. But otherwise he will let the man go ahead and find out for himself that he was wrong. That is what he has done with me. That is our general policy. For not otherwise is it possible to train a man into accepting responsibility. The hardest thing in business is to get men to take responsibility. It is easy enough to get men who will carry out orders."

And then very quickly the son began to have more responsibility put upon him. The war came on, and he was put in charge of the Eagle boats, the Liberty motors for airplanes, and the caissons. Since then, he has shared the whole responsibility of the great establishment with his father. Neither takes any important action without the other, but no one knows what

part each has in arriving at any decision. The two men are very close indeed. Henry Ford said:

"Edsel has his own mind and his own ideas. He knows some things better than I do, and I know some things better than he does. He is especially good on line and color and he is behind our airplane work. He is very much interested in aviation, and, although I am interested, I have never been able to see the future of the airplane as transportation in the way that he sees it."

But never in a specific instance has it been revealed whether Henry Ford or Edsel Ford has taken the initiative. It is not known on what points they have possibly disagreed. It is certain that they do have differences of opinion, for both know the business—and have opinions. But no one in the organization knows more than that a policy is adopted.

Since Edsel has come into the management, however, more attention has been paid to the outward appearance of buildings and products. All the buildings that have been put up during ten years have been of excellent architecture and very beautifully—although never ornately—fitted. The Lincoln body designs are largely Edsel's, as is also the design of Model A; the mechanical part is largely Henry Ford's. And the adoption of an entirely new model as opposed to the extensive improvement of Model T is said to have been proposed by Edsel, and it is known that he advocated the standard gear shift.

Thus, with the new model, the Lincoln car, and the airplanes, the company in a large measure belongs to the new generation. But when it comes to principles, then Edsel Ford follows his father as closely as he can. Edsel said:

"I have not worked out for myself anything in the nature of a business philosophy and I see no reason why I should, for I cannot imagine a better one than my father has held. His principle of paying high wages and selling at low prices is fundamental, and in time any man who does not follow it will be considered much more odd than was my father when he adopted it.

"Every one now knows that high wages provide high buying power and that in order to sell one must provide buying power. And, also, every one ought to know that high wages are not expensive wages, for it is up to management to see that the arrangements are such that the high wages are low wages as far as cost of the product is concerned. I have no idea how high wages can go and also I do not know how low the prices of products will go. Those things have to be worked out as one goes along, but I doubt if we shall ever have another great increase such as the one in 1914, when we put in the $5-a-day minimum and doubled the average wages. A great increase of that sort is not really desirable, for the rents and prices go up to meet the wage. We should rather make slight increases from time to time and where they seem deserved. That we are doing all the time.

"The five-day week has come to stay and must eventually spread through all industry if people are going to be given a chance to increase their wants. The Saturday half-holiday is not very old, but it is almost universal, in offices at least, and it has not affected production. It is not worth while to open up for only half a day on Saturday. Of course, in the factory some jobs have to be continuous—twenty-four hours a day and seven days a week. But the shifts on these jobs can be arranged to give two full days a week. The eight-hour day is now a settled fact, and it may be that the day also will shorten, but it seems more likely that the week rather than the working day will shorten. These, however, are all my father's ideas, and I am only repeating what he has often said."

Edsel Ford takes his work very seriously and fully realizes the responsibility that is on him now and that will be on him in the future. But he has caught some of his father's knack of keeping himself sufficiently free of detail never to lose the broad view.

Henry Ford collects antiques, builds odds and ends of things just for his own amusement, dances a good deal, and, in general, has more fun than many a man who does nothing but try to have a good time.

Edsel likewise goes in for many side issues that he enjoys. He likes motor boating and he also likes sailing. He is a first-class speed-boat driver, but he does not race nowadays. He has a house on the Maine coast where he gets plenty of sailing, and he also has a country place near Detroit where he can have riding and tennis, and can roam about the woods. He has a large house in Detroit and he lives well. He buys quite a number of paintings and books in the course of a year, but he does not go in for record prices and is never known as a public bidder. Some of the paintings he hangs in his house and others he gives to the Detroit Museum. He travels a good deal and always with his wife—who was a Miss Clay, of Detroit. They have been married twelve years and have four children—Henry Ford, 2nd, Benson Ford, Josephine Clay Ford, and William Ford. The oldest child is ten and the youngest three.

When in Detroit, Edsel Ford spends about two hours a day on three days a week in his office—for, unlike his father, he has an office and uses it. Henry Ford has several offices but never uses any of them and has no hours. In fact, a good part of his time is spent in the draughting room. It is a principle of the Ford organization that a head man should not spend much time at a desk. They consider that an executive ought to be going about seeing work and not sitting down seeing people. Henry Ford does not see any one whom he does not want to see—otherwise he would be swamped from early morning until late at night. Edsel Ford, being younger, cannot quite keep to his father's methods and so he has to see a certain number of people who might be offended if they did not see him. But he also has cultivated a protection against the hordes who try to see rich men on all sorts of pretexts.

"Are you afraid," I asked him, "that the business, the money, and the responsibility will unite to become a burden?"

"No," he answered. "I am not. If we keep our policy of putting responsibility on the heads of the divisions of the business and do not get into an organization of titles, the business itself should never be a burden. Of course, if one allowed too many details to creep in, then the business would not be a burden exactly but it would take every minute of one's life, and I do not want to exchange my life for the company. My father has managed to avoid this. He has the kind of fun that he wants and still manages to attend to everything that needs his attention. I hope that I, too, shall be able to do that.

"Money can hardly be a burden—unless one lives for money. I know men whose methods of living are so complex that life must be a burden, but that is their choice. No one compels them to live that way.

"We have never had more money than we needed to run the business and also to keep a reserve in hand for changes or emergencies. I agree with my father that the first claim upon the money the company earns is the company itself. We are committed to the policy of high wages and low prices, and this means a continuous program of change—for better methods are always coming up. If the business should not require all the money it earns, then it would not be hard to find plenty of good uses for all that we have. There are no end of opportunities for medical and scientific research, and then there is always education.

"We have now a considerable educational side to the company in the trade school, in which the boys learn trades as well as gain a fairly rounded education. We have managed this for boys who have some one depending on them and who would otherwise have to take the first job offered in order to find money for their homes. We pay them wages and start savings accounts, but this is not charity. The boys earn their wages by making practical things that we use in our business. This helps the boys and it helps us. The school is not self-supporting, but the wages are earned. We could use a great deal more money just in advancing this idea of education.

"No, I have never been able to see that the ability to earn money should be a curse or a burden—unless one chooses it to be so."

Who is a Criminal—and Why?

Fourth in a Series on Life and Death in Sing Sing

LEWIS E. LAWES
WARDEN OF SING SING PRISON

WHO IS a criminal—and why? This "double-barreled" question evokes in the minds of most people a man with a receding forehead, a low, beetled brow, furtive eyes, a cruel, tight-lipped mouth, a protruding jaw, large flapping ears, a huge torso, long hairy arms and legs—a sort of human monstrosity for whom crime is instinctive—a born criminal.

Is there such a person in reality? In twenty-four years of prison experience, in which I have come in contact with over 30,000 convicted men, I have never seen a prisoner who fulfilled this description. And yet, I read recently of a Supreme Court Justice of New York who was quoted by the newspapers as having stated that there were eight physical characteristics that marked the criminal, to wit: "receding chin, protruding jaw, wide unwinking stare, droop in the left eyelid, low brow, bumpy brow, thick hair, and ears set at right angles to the head"; and that where as many as four of these characteristics were present in an individual there could be no doubt as to the man's criminal nature. A half-dozen well-known men, who have at least five of the eight physical characteristics named, includes the president of a leading American university, a great English preacher, a French general, a Russian statesman, a leading Spanish writer, and one of the world's greatest inventors. I could not help but wonder as I read the Justice's list of characteristics whether he had ever checked them on his fellow-members of the Bench and Bar.

The Justice was further quoted as saying: "If you see a man with a drooping left eyelid or with wide-open, starey eyes, beware of having your pocket picked." In other words, by the Justice's simple system, one can not only recognize the criminal by sight but can also determine at a glance whether one is going to be murdered or only have one's pockets picked.

The idea of the born criminal, foredoomed to crime by his physical make-up, was elaborated into a theory by Cesare Lombroso, an Italian criminologist. The theory, however, was quickly exploded by Dr. Charles Goring, who, using the same methods, examined an equal number of English convicted criminals and non-criminals and found as many of Lombroso's physical stigmas in one class as in the other.

It is now known to all leading scientists, sociologists, and criminologists that law-breakers are just as normal or abnormal as those who keep the law; that the "born criminal" type does not exist and never has existed. The myth of the born criminal persists because it appeals to the public's imagination and has been popularized by fiction, by the stage and screen, and by the cartoonist's pen. Show me an American who looks like Uncle Sam or an Englishman who looks like John Bull and I shall grant the possibility of finding a man who looks like the so-called typical born criminal.

A correlative theory to that of Lombroso's admits that there is little or no significance in the physical characteristics but holds that the criminal has distinctive inherited mental characteristics that he betrays in a "penchant for gambling, taste for strong drink, use of slang, vanity in dress, love of animal pets, desire for easy money, aversion to hard physical labor," etc., *ad nauseam*. This, as the Irishman remarked, "takes in a lot of territory," so much, in fact, that there are very few people who would fall in the non-criminal class if judged by these characteristics.

One might add the equally "significant" facts that criminals like ice cream, wear neckties, and prefer shower baths to tubs.

The theory of criminality upon which most of the criminal law and practice of to-day is based is fundamentally religious and quasi-philosophical in principle and assumes that all men, despite any physical, mental, and environmental differences, are equally able to distinguish between right and wrong and should, therefore, be held equally accountable to the law.

This theory falls down in important respects. Right and wrong in a religious and moral sense are not identical with right and wrong in a legal sense—a "right" act morally may be a "wrong" (criminal) act legally and, of course, *vice versa*. Moreover, the insane, feeble-minded, and ignorant are often not able to distinguish clearly between right and wrong in either a moral or a legal sense. But in recent years there has been a tendency to over-emphasize the part that insanity, feeble-mindedness, and ignorance play in criminality.

Officials of the large surety companies find from experience that "nine out of ten men are potential criminals" and believe that women are more honest than men. On the other hand, the heads of great department stores say that the majority of people are honest and that nine out of ten thefts are committed by women. Hotel officials say that both men and women guests steal everything that can be carried away. Doctors state that they find evidence of sex immorality of a criminal type in a large percentage of their patients, and newspaper men know that they must publish racing schedules, charts, and betting prices because their public gambles on the races, although such gambling is criminal and publication of these facts makes more criminals.

In other words, the popular criminal theories, consisting of a curious mixture of contradictory ideas, ancient and modern, religious and sociological, philosophic and scientific, *do not square with the practical facts*. What is the explanation of the contradictions?

Two men were passing a circus picture showing the performer holding the jaws of a lion open with his hands, and one said to the other: "Look what power a man has over such an animal as a lion!" "Yes," replied the other, "but suppose that picture had been painted by a lion instead of a man, what would it show?" That is, a great deal depends upon the viewpoint.

What is the correct angle from which to approach this question of the criminal—who and why? Law determines crime. There would be no crime without law and, by the same token, no criminal without law. A criminal is, therefore, any one and every one who commits an act forbidden by law or omits an act commanded by law. Any one who steals, be it a 5-ct. apple or a $50 bill, a watermelon or a car, a handkerchief or a fur coat, has committed a theft and is, in the real sense of the word, a criminal—regardless of whether or not he or she is ever tried and convicted—just as much as the man who commits a murder is a murderer and a criminal even if never apprehended and convicted.

I have discussed this point pro and con with hundreds of prominent men. Most of them when pressed for an answer have admitted that at one time or another they had violated laws (committed crimes), which would have resulted in imprisonment if they had been prosecuted for them. Some even admitted a sufficient number of violations to bring a "life sentence" under the law as it now applies to "fourth offenders."

The few who would not admit the commission of a crime conceded that they could imagine conditions under which they might commit a criminal act. The poet Goethe is said to have stated that he had never heard of a crime that he could not conceive of himself doing under certain circumstances. President Rutherford B. Hayes said: "We would like to disown our common humanity with the downcast. We are apt to thank God that we are not like other men, but I can hardly recall a case where I did not feel that I might have fallen if I had been subjected to the same influences and temptation."

Crime is not peculiar to a certain, specific type of a man. All mankind is potentially

criminal under certain circumstances and conditions. Most men stumble and many fall. In every community are respectable men whose wealth has been the result of a lucky gamble that was more or less illegitimate and that was criminal in all essential respects. Many an honored financier has made his success by "blackjacking" competitors and by bribing public officials. Such men of the "upper-world" are as criminal as the "blackjacking" thugs of the underworld.

Now the fact that under certain conditions crime is largely deterministic does not constitute a valid excuse for crime nor absolve the criminal of responsibility. Man is, in the matter of conduct, like a horse tethered to a rope. The length of the rope absolutely determines and limits the area of his action, but within this space his actions may be freely chosen—there is freedom with certain fixed limits. The "rope" of a man's heredity, environment, education, etc., limits his area of action, but he is responsible for his choice of conduct within this area. Only rarely is this rope so short as to limit his choice to criminal conduct.

Quite aside from the matter of individual responsibility is the practical consideration of the protection of organized society, whose rights and necessity are above that of the individual. Society, however, in attempting to adhere to a jumble of theories, some of which have been exploded or discredited and others of which are only "half-baked," complicates the criminal problem and—worse yet—actually produces most of its criminals. Crime, as everyone knows, is general, and the prevention of crime is hampered by an antiquated system of justice. Society succeeds in bringing only a small number of violators before the courts, and only a small percentage of these, the "small fry," are convicted. The New York State Crime Commission found that there were 19,468 arrests for felonies in New York City in 1925. Of this total, only 5,622 were indicted, and only 1,178 were committed to Sing Sing.

Society not only fails to catch and convict the "big fellows," who too often set the example or provide the incentive for the "little fellows," but it also blunders inexcusably in its handling of the convicted criminals. Some of these it kills—according to the old rule of "an eye for an eye"—the others it punishes with imprisonment, varying the dose by the crime and at the whim of a judge who often knows little of practical penology. No concerted effort is made at either prevention or correction, and the result is that new criminals are being continuously created, and the old ones made worse, by unwise and often unjust treatment.

There will, of course, always be crime, because there will always be laws to violate; there will always be criminals, because there will always be men and women who will violate these laws. There is nothing mysterious about crime—the germ of crime is universal; criminality has its sources in the human impulses of mankind that are neither good nor bad in themselves but only in relation to other things.

These and other *facts* must be faced, and the whole problem approached along practical lines, like a business problem. Causes and cures must receive first consideration and emphasis rather than theories and precedents, dating back hundreds of years, to the time when men believed in the divine right of kings, witchcraft, etc., and executed animals for crime. For example, a hog that had killed a child was sentenced as follows: "The Court in detestation and horror of this crime and in order to make an example and satisfy justice, has declared, judged, sentenced, pronounced, and appointed that the said hog, being detained a prisoner and confined with other animals in the jail, shall be by the executioner strangled and hanged on a gibbet near and adjoining the gallows." Who will deny that similar foolish notions are at the bottom of many of our laws and much of our criminal and penal procedure to-day?

The born criminal of popular imagination is a *myth*, but the violation of law is a *fact*. Those who violate the law, regardless of whether or not they are ever apprehended and convicted, are criminals—yes, just that; if the shoe fits it must be worn.

"The most daring and desperate, most hardened and cruel, most cunning and remorseless criminals in the world"—this has been said of the murderers, robbers, burglars, and other criminals of New York City and its environs, from which Sing Sing receives its prisoners. Whether or not this is literally true, I cannot, of course, definitely say, but there is little doubt that Sing Sing's prisoners are as bad as are to be found in any other of the world's prisons. Since I became warden of Sing Sing, on January 1, 1920, I have handled more than 10,000 of these "bad" men, and have found myself faced with an equal number of paradoxes and anomalies. The gunman-murderer, in most instances, proves to be tender-hearted; the bold robber, timid; the thief, honest.

The warden is required by law to live at the prison and the statute provides that his servants shall be prisoners. The result is that I have had a cook who was a poisoner, and have been shaved by a prisoner who had cut another man's throat. My youngest daughter, now six years old, has been driven about outside the prison walls in her pony cart by a man doing twenty-five years for kidnapping, and my guests often turn their valuables over for safekeeping to men under sentence for robbery, larcency, and burglary. My wife and I walk about the prison yards and among the men with greater assurance of safety than we should feel on the streets of any great city. I have never carried a revolver or blackjack in Sing Sing Prison.

A prisoner who had killed three persons had a little mongrel yellow dog that had its leg broken by a front wheel of one of the prison trucks. At imminent danger to his own life, he grabbed the dog from in front of the heavy rear wheels and, crying bitterly, begged his prison "buddy" to do something for the dog. Together, they put a crude splint upon the leg, and the dog recovered.

No one seems to know where all of the dogs that are in Sing Sing come from. It seems as if every homeless dog within miles must sense the fact that he will find a safe refuge within the walls. Certain it is that no dog is ever turned away, and many a prisoner has, to my own knowledge, deprived himself of food so that his dog might not go hungry. The local dog catcher came to the prison one day to take away all unlicensed dogs, but in the few minutes it took him to get inside, every dog had mysteriously and miraculously disappeared.

Pets run the gamut from cockroaches to a parrot that was a gift to a natural lifer. Some prisoners make pets of mice and rats, which show surprising intelligence. Others are able, with indefatigable patience, to tame and train sparrows, wrens, and other wild birds, and it is rather interesting to note that prisoners cannot be induced to cage their pets. The love of pets is so generally true of prisoners that Lombroso and some of his followers concluded that it was indicative of inherent criminality. Such an idea is, of course, absurd in the extreme, and it is only because prisoners are shut off from the ordinary contacts of life that their affections are directed toward pets. A little girl who has no beautiful wax doll will shower her love upon a homely rag doll.

It seems entirely logical to assume that the average man who steals does so because he is too lazy to work for his living, but I find myself unable to square this conclusion with the fact that I have seen hundreds of such men volunteer to fight dangerous prison fires and work night and day until the fires were subdued. Another peculiar feature of these situations was that the prisoners had nothing to gain by this work and might have been expected to be glad to see the shops burn, as this would have meant less work for them to do until such time as the buildings were reconstructed.

I also find many men who have been committed for larcency, forgery, and burglary, who are excellent workers with no other incentive than 1½ cts. a day. In fact, prisoners, taken as a whole, willingly return a great deal more to the prison and its management than is given them, and I make this statement as a matter of rendering justice to whom it is due—be they gunmen or confidence tricksters.

In addition, many prisoners give of themselves unsparingly and without selfishness to their fellow-prisoners. Some of

the best teaching I have ever seen has been done by prisoner-teachers in the prison school, where instructions must be done well in order to achieve the excellent results that have been obtained. In this connection, I recall an incident that occurred while I was showing Sir Thomas Lipton through this school three years ago. Sir Thomas was so much impressed with one of the teachers that when the class was over he complimented him by saying: "Fine work you are doing, Professor, and I hope you continue here a long time." Sir Thomas was somewhat chagrined, later, to learn that the "Professor" was a prisoner—a man formerly prominent in a national reform movement—and that Sir Thomas's wish that the teacher would "continue here a long time," while intended as complimentary, was actually (if taken literally) far from being a good wish from the prisoner's standpoint.

A call for volunteers to furnish blood for a transfusion invariably brings a large number of men who have absolutely nothing to gain thereby—not even an extra portion at the next meal. The prisoner nurses and attendants often work night and day over what appears to be a hopeless case, and in some instances their unceasing care results in remarkable recoveries. The prisoner who is admitted to the hospital ceases to be a prisoner as far as the hospital staff is concerned, but becomes a patient, and is treated as such, regardless of whether he is white, black, or yellow—gunman, robber, or burglar.

"Old Jake"— who is a sort of assistant to every worker in the hospital—is now doing his eighth "bit," has spent most of his life in prison, and has been a miserable failure from a social standpoint; but in the good that he has done his fellow-prisoners by long hours of patient care and drudging labor, he has been a huge success. I don't know, but I fancy that whatever his shortcomings in this world have been, "Old Jake" will need no judge's commitment to get "within the walls" of heaven.

Those who think of the criminal as he is usually portrayed in fiction may find it difficult to think of him as having any of the characteristics of a hero. As a matter of fact, I know of a number of former prisoners who distinguished themselves for bravery in the late war, and there are now in Sing Sing several men who have received high decorations for fearlessness and heroism. More than 20 per cent. of our present prison population has seen service in defense of our nation's flag. If I should ever need a man upon whose courage I could rely in the face of the gravest danger, I know hundreds of men—prisoners and ex-prisoners—upon whom I would stake my life.

There are no social or racial distinctions among men in Sing Sing. Every prisoner, be he blue blood or Bowery bum, stands or falls on his merits. He may, and sometimes does, deteriorate through selfishness, deceit, cowardice, and shiftlessness until he is little more than a number. Or he may through unselfishness, honesty, courage, and the desire to serve build himself up in the esteem of his fellow-prisoners and the prison officials. Prisoners are quick to recognize merit and to give credit to those fellow-prisoners who are deserving.

This brings me to the consideration of the fact that a thief in prison is despised by prisoners committed for theft, and that capital punishment is strongly upheld by those who have been sent to prison for murder. How do they square this attitude with their own crime? Simple! Their acts were not crimes to their own way of thinking.

"I believe you are here for larceny, aren't you?" I asked a prisoner who complained that his fountain pen (later found just where he had left it) had been stolen.

"Yes," he replied, "but I didn't really steal nothing. I had spent a lot of money on this girl, so when she gave me the go-by, I keeps her ring and sells it, and didn't get back near what I had spent on her."

A prisoner who had been a bank cashier insisted that what he took really belonged to him, as he had worked long hours overtime and was poorly paid, anyhow. Another man declared that he hadn't really stolen anything, because he meant to, and would have, put it back as soon as the stock on which his employer gave him a tip went up. Several prisoners have con-

tended that they had done no more than is being done by "big business" every day, and that "Stealing is good business when a man succeeds and is larcency only when he fails."

"That fellow should have got the chair; he murdered his sweetheart in cold blood. Too bad he didn't kill himself and save the state the trouble." This—and much more along the same line—was said to me by a prisoner who had killed his wife as she slept. He had intended to commit suicide after the murder, but had lost his nerve at the last minute. He blamed the other man but excused himself, because he had intended to kill himself and felt that it was better to kill his wife than to leave her at the mercy of the world. Bear in mind that the man he condemned had actually attempted to commit suicide, whereas he had lost his nerve. An Italian prisoner once said to me:

"When the war come, I go make a fight and kill Germans who never hurt me at all. For this I get a medal. Then I come home and this man, he slacker, ruin my sister. Now the judge he say I must do twenty years. I maybe make a murder in war, but I no make a murder to kill this snake."

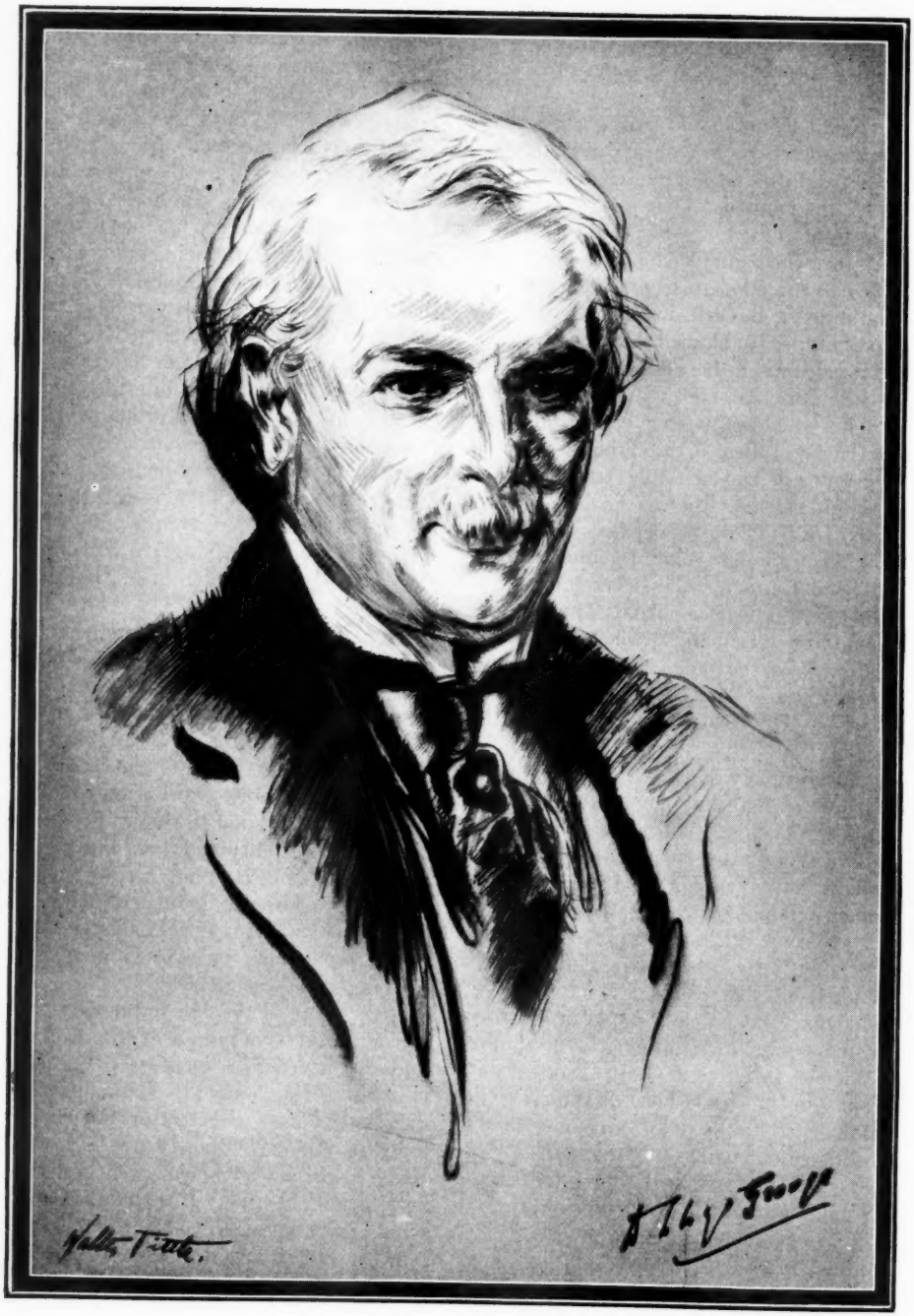
An unusually intelligent forger—one of the few who got any money to speak of—took the position that success in any line is largely a matter of outwitting the other fellow, that nobody but the farmer and the miner were really creating wealth, and that all other wealth was acquired by "outsmarting" the other man. He also contended that "carelessness is inexcusable," and that the careless bank or business man deserves a "trimming." He emphasized the fact that he only "worked on" banks or business men who carried insurance, so "nobody lost anything, as the insurance companies got theirs from people who would rather pay premiums than to take ordinary business precautions."

I was reminded in this connection of a statement made by Judge E. O. Lewis, of Philadelphia, in an address delivered before the American Association for the Advancement of Science. He said: "The insurance system is responsible for a great deal of crime." Readers will recall that the principal incentive in two recent murders in New York City was life insurance, a large part of which was procured without the insured man's knowledge.

I read recently a statement quoting officials of a New York City company that writes theft insurance of various kinds as saying that losses through forgery alone totaled $20,000,000 a year for New York City. Now, I have been unable to find a year in which commitments from the entire Sing Sing district accounted for more than $300,000 in losses by forgery, and this was far above the average. No doubt the publication of the larger figures scares more people into taking out forgery insurance, but it also results in many young men gaining the impression that crime pays, when as a matter of fact it does not. I am of the opinion that an incalculable amount of harm is done by the publication of grossly exaggerated figures in connection with the hauls of robbers, burglars, and forgers.

Crime is rarely a one-sided proposition; guilt is rarely entirely personal. Responsibility must, in most instances, be shared by society, which takes credit for a man's virtues and should by the same token acknowledge at least some of the blame for his vices. The newspapers and movies must, in many instances, share a good deal of the responsibility of crime, but so too must the schools, the churches, and many thoughtless fathers, indulgent mothers, vain wives, underpaying employers, dishonest politicians, usurious bankers, and grasping money lenders.

Some people have the impression that the men who have been sent to prison for robbery, larcency, forgery, and burglary have made "big hauls" that should enable them to live in ease thereafter. Such is not the case. Almost without exception, they arrive in prison poor men, even though a very few of them may have handled large sums in the aggregate. More than 98 per cent. of the money deposited to the accounts of prisoners in Sing Sing is small sums received as gifts from relatives and friends. I am sure there are malefactors of great wealth, but they are not sent to Sing Sing. It just isn't being done!



DAVID LLOYD GEORGE

Political Battles of the World War

Second Article in a Series on British Politics by

LORD BEAVERBROOK

The gradual decline of some of Britain's national idols and the rise of Lloyd George and other new heroes are described here by Lord Beaverbook. In the next installment he tells how Kitchener and Lord Fisher vanished from the scene and how Churchill overnight—but in a night filled with drama—lost the Admiralty.

THIS INSTALLMENT will be concerned with the internal difficulties of the Tory chiefs and with the second attempt made from the Liberal side to attract them into a Coalition Government. As in the previous instance, the protagonist in this coalition effort was Mr. Churchill, who now occupied a position of very considerable influence in the counsels of the Government. In public prominence, at any rate, the First Lord of the Admiralty outstripped at this time any other Minister except Lord Kitchener. Churchill's personality made a strong appeal to the imagination of the people. A striking speech of his at the Guildhall, consisting of only a few pointed sentences, had made an especial appeal to Conservative sentiment. And in October, 1914, he had figured in the fiercely discussed episode of the expedition to Antwerp.

I purpose to deal with this question only in so far as it had a political complexion. With its military aspect I am, of course, not concerned, though I believe that history will decide that the authors of the expedition had sound grounds for their action. In the world of politics the Antwerp affair nearly produced a striking change in the Cabinet, and one that might have profoundly modified subsequent developments in the Mediterranean. When Mr. Churchill hurried across the Channel to encourage the Belgian authorities to hold on to Antwerp until relief should arrive, he was so impressed with the urgency and importance of the situation that, on October 4th, he cabled to the Prime Minister from the beleaguered fortress in the following terms:

If it is thought by H. M. Government that I can be of service here, I am willing to resign my office and undertake command of relieving and defensive forces assigned to Antwerp in conjunction with Belgian Army, provided that I am given necessary military rank and authority, and full powers of a commander of a detached force in the field. I feel it my duty to offer my services, because I am sure this arrangement will afford the best prospects of a victorious result to an enterprise in which I am deeply involved. I should require complete staff proportionate to the force employed, as I have had to use all the officers now here in positions of urgency. I await your reply. Runciman would do Admiralty well.

Lord Kitchener received this despatch from the Prime Minister. His comment was written in his own hand on the margin: "I will make him a Lieutenant-General if you will give him the command." But the decision of the Government was against the proposal. Lovers of the curious in history may regret that the occasion was lost for producing the spectacle, unprecedented in modern times, of a Cabinet Minister stepping direct from the council chamber to high command in the field. The autumn and winter of 1914 were, indeed, a stagnant period as far as politics were concerned. The new days had dawned of a "patriotic Opposition."

But though all was calm on the surface, the depths were frequently troubled. The Tory leaders, in adopting the policy of silent support, had undertaken more than the human nature of their supporters could always, one might almost say ever, bear. Fresh from a fierce party conflict, these supporters distrusted the ministers pro-

foundly. Several of the members of the Government they knew to be pacifists. The Conservatives were no doubt burningly anxious to help to win the war, and they found their rôle reduced to one of negative endurance. There was only one thing that would really have satisfied them—the authority for their party to run the war—and since this could not be granted to a minority, many of them were none the less disturbed and discontented because what they demanded was plainly irrational.

Of all these thwarted desires the two Conservative party leaders—Bonar Law and Lord Lansdowne—had to bear the brunt. Some weeks it rained memorandums from members of the House of Commons, and the authors were firmly convinced that the fate of the Empire depended on the acceptance by the Government of their typewritten views. The writers made the pills, and they expected their leaders to administer them to a harassed and recalcitrant Ministry. The national service members wanted at least a compulsory cadet system. G. H. Q. in France found a kind of spawning pond for its grievances in the Opposition ranks at Westminster. Every month a suggestion for a debate that would either have been futile or have revealed valuable military facts to the world had to be crushed without giving offense.

As Lord Balfour pointed out very wisely and temperately at the outset of 1915, the dilemma of the Opposition was not to be eluded. You must either have silent, even uncritical, support, or you must have coalition. You could not have loud discussions of military plans, or give private advices to ministers when the facts were not before the advisers. Under these circumstances the second attempt to originate a Coalition Government was made. This movement, like its predecessor of August, 1914, was started by Mr. Churchill, who had a curious passion for bringing the Tories, who were fundamentally hostile to him, into the Ministry. How was he to recapture the spirit of coöperation between parties that he believed existed at the outbreak of war? His friend Birkenhead was in France and was not available any longer as a means of communication.

But the naval bombardment of the outer forts at the Dardanelles had proved a striking success. Constantinople seemed to be almost within grasp, and the future of Constantinople had become a topic of serious consideration between the British and the Russian governments. It was suggested that, as a means of strengthening the War Alliance, the British Government should promise the coveted prize to Russia in the event of a successful issue.

Immediately another question arose. Could a single British party, which might be out of office when peace was declared, pledge Britain to this course? Must not the Opposition be consulted in order to assure the continuity of British policy over Constantinople? Mr. Churchill grasped eagerly at this opportunity. He counted Constantinople as being already in his gift. It might be used as a lure to catch Russia first and the Opposition leaders afterwards. He urged the Prime Minister to invite Bonar Law and Lord Lansdowne to a conference. He imagined that the Tories would say, not without reason, that they could not take responsibility for such a plunge into European commitments unless they had at their disposal, as the Government had, full knowledge of the reasons that dictated the policy. From that attitude it would appear easy to draw them on one step farther—namely, to a decision that they should share power if they were to be asked to share responsibility.

The Tory leaders were accordingly summoned to the War Council to discuss the cession of Constantinople to Russia, should it be in the gift of the Allies at the making of peace. The event turned out very different from the anticipation. Bonar Law had no knowledge at all that he was being invited tacitly to step into a Coalition Government. None the less, with his customary acuteness, he suspected that something lay behind the invitation, and he behaved at the meeting with even more than his habitual caution.

The Prime Minister, on his side, was not in the least forthcoming. He found it in those days almost impossible to treat Tories as equals. The Tory leaders ap-

peared to sit silent and hungry at the board. Inwardly they were registering a decision never to accept such an invitation again. For it was absurd to suppose that they would take responsibility for Ministerial policy when only the conclusion, and not the facts on which it was based, were put before them. On leaving the War Council, Bonar Law and Lord Lansdowne determined that while they would meet the Prime Minister in private and listen to anything he had to tell them, they would never again fall into such a trap as the conference on Constantinople had seemed to open before them.

Mr. Churchill's efforts, therefore, so far from promoting a working agreement between parties, leading toward a coalition that would, as he firmly believed, strengthen the instrument for waging war, had in reality a precisely opposite effect.

The Government also had its troubles and dissensions, as I have pointed out. There was far more harmony below than at the top. The brotherhood of man and of arms might embrace the rank and file, but not the Cabinet. In the country, Liberals and Tory members of Parliament were speaking once more from the same platform at recruiting meetings. They even met socially in a way they had not done in all the years I sat in Parliament before the war. Especially after the Irish troubles had been forgotten Ministerialists and Opposition began to consort with each other again. There had always been, of course, a group that ignored public animosities for the sake of the pleasures of private intercourse, but it had never been a large one.

Now all this was changed. I remember distinctly my surprise in finding myself dining in the House of Commons with a set of Liberal politicians. This dinner was only the beginning of a general breaking-down of barriers to which I owe many of my present-day Liberal friends. But this atmosphere of brotherly love did not extend to Downing Street and Whitehall.

The early months of the year 1915 were marked by serious disturbances inside the Cabinet over the question of the supply of guns and ammunition to the army in the field. The outside view that this question never became vital or prominent until the time of the fall of the purely Liberal Government in the spring of 1915, and the press campaign of that period is entirely contrary to fact. In the course of this narrative I shall have to describe three phases of what is known as the shell controversy.

The first phase, which we have now reached, embraces the controversy beginning in October, 1914, and ending with the appointment of the Shell Committee in April, 1915. The second phase is the quarrel between G. H. Q. in France and the War Office at home that began after Neuve Chapelle, in March, 1915, and lasted till the fall of the Government on May 19th of that year. The third phase may be described as the influence, such as it was, that this source of trouble had on the crisis that produced the first coalition. For the moment I am concerned only with the first phase.

As early as October, 1914, Mr. Asquith was seriously concerned with the ammunition problem. He had not reached the point of realizing that in the teeth of all military advice it would be necessary to call in civilians and new firms to make good the supply, but he did consider putting the armament firms under government control, and he appointed a special committee of the Cabinet, consisting of McKenna, Runciman, and Lloyd George, with Lord Kitchener as chairman, to deal with the problem. The results attained proved, however, disappointing, because Lord Kitchener and the War Office were firmly resolved that a civilian body should not interfere in the ammunition question.

By the beginning of March, 1915, Lloyd George, who, as in the case of the Balkans, was here, too, destined to develop his main controversial campaigns early in the war, was thoroughly dissatisfied with the shell situation. On March 6th, he told his friends that he intended to resign unless a Shell Committee with adequate powers was appointed. Most of March was spent in an attempt to deal with the situation created by this threat. Toward the end of March, Mr. Asquith had summoned Lloyd

George, Lord Balfour, Churchill, and Montagu to a meeting to consider the whole question of putting munitions on a proper footing and of creating a committee that should have real powers to deal with the matter. It was significant that Lord Kitchener was not invited to this conclave.

On March 28th, matters came to a direct issue in the Government, Kitchener indicating resignation if the committee contemplated were appointed, and Lloyd George adhering to his own threat of retirement if it were not. The end of the month found the Prime Minister still struggling to arrive at a settlement between the civilians, who felt that the military had not grasped the full import of the situation, and the soldiers at home, who regarded the intervention of the civilians with contempt.

One potent voice was, however, raised in favor of the appointment of the Shell Committee. Lord Balfour expressed grave discontent with the failure of the Government to carry into effect the opinion of the meeting that he had attended in the third week of March, and on April 8th, the Shell Committee was finally constituted, and was announced in the House of Commons on April 15th. It consisted of Lloyd George (as chairman), Lord Balfour, Harold Baker, George Booth, Sir Stanley von Donop, and Edwin Montagu.

The last named supplied much of the hard executive work that this committee contributed to the problem set it. Montagu's abilities were extraordinary. He became the rising hope of Liberalism, the visible successor of Lord Roseberry, at almost too early an age for the hope of the morning to last into the afternoon. At twenty he had almost ceased to be young; at thirty he was middle-aged; at forty he already represented a maturity of judgment that accompanies real age. Unrivaled in his mental equipment, he seemed to lack the courage to take the responsibility for his own projects, sound as they invariably were, and as a consequence tougher but less able men reaped where he had sown. His early death was an irreparable loss to the state in this dreadful age of mediocrities.

The Committee was appointed, but, none the less, matters can hardly be said to have proceeded smoothly. Colonel Repington, dealing with the dissensions over the supply of guns at this period, writes: "Lord Kitchener did not comprehend the importance of artillery in the war, took no effective measures to increase our supplies of it, and concealed the truth of the situation from his colleagues in the Cabinet." I have never seen any refutation of this charge—though it is really quite unsubstantiated. It is founded on an incident that took place when a number of the authorities on the shell question were together in a room, and when one of the clashes Lord Grey has recorded between Lord Kitchener and Lloyd George took place.

Just before the Shell Committee was appointed Lord Kitchener had been asked for some relative figures between men and gun material. He had been very unwilling to answer this particular question in detail, but on this occasion he did produce the figures. In the meantime a practically identical question had been put to Sir Stanley von Donop, who also put in a return. Lloyd George, with Von Donop's return before him, immediately challenged Kitchener with the bold accusation that he was being treated to "cooked" figures. The whole thing was probably due to a misunderstanding that could have been explained quite easily. But on the occasion of Lloyd George's attack feeling between the various supporters of the protagonists to the dispute began to run high. Then ensued a scene truly remarkable in itself and more remarkable still in the dramatic consequences that might have flowed from it.

Kitchener behaved with great dignity. He rose from the table and declared that, as he appeared to have lost the confidence of some of his colleagues, who were supposed to be working with him in the supply of ammunition, he would retire. Such an action could, of course, mean nothing less than resignation from the Government. Had he succeeded in carrying out his intention, the whole history of the political direction of the war would have been altered. For so great was his external prestige

at that time that his resignation must have brought about the immediate fall of the Government. Under such circumstances all the Liberals must have resigned together, and a Conservative Ministry, though in a minority in the House of Commons, must have taken office.

That this did not happen was due to two facts—that the door of the room opens *inwards*, not *outwards*, and that Mr. Pease [now Lord Gainford] happened to be present. He was the Postmaster-General and an ex-party whip, and therefore a man of prompt decision in a political crisis. Pease got up and practically raced Lord Kitchener for the door. So near a thing was it that had the door opened outwards, Lord Kitchener would have passed through before Pease could have stopped him. The Postmaster-General acted swiftly, and placing his back against the door, and spreading his arms across it, he made it impossible for Kitchener to get out—except by resorting to physical violence. During the interim some realization of the devastating consequences of what was, after all, largely an outbreak of temper on all sides, came home to everybody. Apologies were made, and the crisis averted.

One Minister displayed some humor in pouring oil on the troubled waters. The War Office, he explained, kept three sets of figures, one to mislead the public, another to mislead the Cabinet, and the third to mislead itself. But though concord was restored to all outward appearance, Lloyd George for some time declared that it was useless for him to argue with Lord Kitchener again.

The War Secretary undoubtedly had a motive for the extraordinary secrecy he so often displayed. He used to declare that politicians talked state secrets to their families, and that on the rare occasions when he moved in society he found the women far more conversant with military facts and movements than was pleasing or expedient. It is not necessary to identify further the political and social group to which this accusation applies. "My colleagues," said Kitchener, "tell military secrets to their wives, all except ——, who tells them to other people's wives."

The Shell Committee was therefore brought to birth with great pangs and labor in the Government. Yet, on April 15th, Lloyd George was chairman of the new body—and this he owed mainly to the support of Mr. Asquith, with whom he was for the moment in close accord. Indeed, when at this period the *Times*, the *Morning Post*, and the *Observer* indulged in some severe criticism of the Prime Minister, Lloyd George assured him with tears in his eyes, and no doubt with complete sincerity, that sooner than join any cabal against him, he would prefer *first*, to break stones on the road, *second*, to dig potatoes in an allotment, *third*, to be hanged, drawn, and quartered.

And the new Shell Committee was undoubtedly believed by all who took part in it at this time to possess real powers. It has, indeed, since been claimed for it that the adequate supply of shells that appeared in France in the late summer and the autumn of 1915 was the product of its labors rather than of those of the Ministry of Munitions, which five weeks later took its place. On the other hand, the chairman complained that the War Office refused it information as to the real needs and demands of the generals in the field. Lloyd George was chairman of the committee; it was his threat of resignation that had been chiefly instrumental in forcing the creation of the body on an unwilling War Office. There is little doubt but that if he had pressed for the necessary information with the same pertinacity he would have succeeded in obtaining it.

Finally, it should be said in fairness both to Sir Stanley von Donop and to the original Shell Committee that they stated a case to prove that no orders and no exertions on their part could have produced a more adequate delivery of munitions until machinery for making shells had itself been created. They contended that this machinery was not ready until the "shell crisis" was over.

It would have seemed at this period that the shell controversy in the Cabinet was bound to come at once to a decided issue. But events took quite an unexpected turn,

owing to a strange vagary on the part of the Chancellor of the Exchequer. After the battle royal of March, 1915, and a week before the final ratification of the committee's powers, Lloyd George had become obsessed with a totally different aspect of the same problem—the slow rate in the production of munitions, which he ascribed to drink.

His agile mind flew off at a tangent, and all through April he was more concerned with his scheme of state purchase of the liquor trade than with compelling Whitehall to give the Shell Committee full information on the needs of the army. His energies became directed rather to seeing that the workingman got less beer than to making certain that the soldier got more shells. The abolition of vodka in Russia went to the Chancellor's head, and he determined to carry state purchase and control in England in order to promote war efficiency.

Having not only conceived this startling ambition, but also fired the cautious moderation of Bonar Law into agreement, it must be said that he went about the business with commendable worldly prudence. He summoned Lord Birkenhead to advise him how the country, or at least the Tory part of it, would regard such a plan. By the beginning of April, 1915, Lloyd George had also divulged his idea to Radical temperance reformers and to Tory frontbenchers alike, and had obtained for it rather a mixed reception. Bonar Law, as has been said, was favorably disposed, but he would not commit either himself or his friends in advance. This was as well, for a rising note of opposition and criticism soon began to make itself heard.

The whole essence of any such scheme was, of course, its finance. Was the country justified in embarking, at the height of a great war, on a colossal outlay, and could the detailed application of the purchase system be made with any fairness to the various interests concerned and to the reasonable satisfaction of the trade? Lord Younger and the brewing interest remained, after an interview with the Chancellor, hostile to the general conception, and their influence was probably decisive in a scale already sufficiently weighted against a somewhat rash and quixotic undertaking.

What is really interesting about this abortive proposal to nationalize the drink trade is the ameliorating effect produced on the relations between the two parties. Much of the bad effect produced by the Home Rule Act controversy was undone when the Liberal Chancellor of the Exchequer entered into consultation with all the important Opposition chiefs. It is true that Lord Birkenhead and Bonar Law were favorable to the plan, and Austen Chamberlain, Lord Long, and Lord Younger were not, but this division of opinion really anticipated the conditions that were certain to arise under a coalition. The great point was that there had been free and intimate consultation between the second man in the Government and the Opposition chiefs on an important national issue. A feeling of friendliness was restored —and, though the issue passed, the impression it had left behind did not. The "drink" problem smoothed the way toward coalition.

Faced with this situation, Lloyd George, speaking in the House of Commons on April 30, 1915, abandoned his scheme with the daring rapidity with which he had adopted it. One moment state purchase filled the whole bill—the next it had vanished as though it had never been. One may marvel at, if one can hardly admire, the light-hearted way in which Lloyd George picked up this vast new plan as one might pick up a £1 gold piece from the pavement and then dropped it again as quickly as if the £1 gold piece had turned out to be a hot potato.

Of all the wild and visionary schemes that flitted across men's minds during the great disturbance of the war, this, I should imagine, was the most impracticable. Its author buried it with almost indecent promptitude, and the funeral party hastily dispersed to deal with more pressing problems. This was the last big question that arose in home politics before the crisis that led to the formation of the first coalition.

While all appeared to be quiet on the

surface, something was moving in the depths of the waters more potent to affect the ultimate result of the war than German submarines. Lloyd George was undergoing a subtle change of view and character. He had been seen in the past as a pacifist—the opponent of "swollen naval estimates," the protagonist of social reform, who went into the war reluctantly, almost as though impelled by some force outside himself. The man of peace was now at war. The new environment began to act on that responsive temperament, and nerves hitherto quiescent in that complex nature began to tingle into life. His moves from the Exchequer to Munitions in 1915, and from Munitions to the War Office in 1916, simply mark his march through the years from the pacifist doubter of 1914 to the greatest War Minister England had seen for more than a hundred years.

The Queen's Hall speech in September, 1915, was the first outward sign that Mr. George the semi-pacifist had ceased to exist. In that splendid oration he, too, like the generation of which he spoke, had to renounce and recant much, and to make a new dedication of spirit "to the great, everlasting things that matter for a nation—the great peaks of honor we had forgotten—duty, patriotism, and, clad in glittering white, the great pinnacle of sacrifice pointing like a ragged finger to heaven."

Terrible as it would have been to the Prime Minister to have found in Lloyd George the leader of a peace-at-any-price party in August, 1914, his new development was hardly less disquieting. Hitherto, if Asquith had been the directing brains of Liberalism, Lloyd George had been the strong heart sending the fresh blood of new policies coursing through the party veins. But what if head and heart ceased to work in unison?

Throughout the year Lloyd George studied the development of events and listened to the rambling and cryptic discourses of Lord Kitchener. The experience left him profoundly disquieted. By the opening of 1915, he was a discontented colleague within the Cabinet, pointing to weaknesses and demanding remedies. He was no longer the animating soul of the Government as in the good old days of peace—but its terror—the spirit that denied all the facile promptings of optimism. Worse than his discontent was the fact that he let it be known outside. Wise Liberal heads were shaken over this vagary of a second-in-command, sure, if he would only keep quiet, to succeed to the Premiership somewhere about 1930.

Already, as early as January, 1915, the idea of mobilizing peace industries for the production of munitions of war was beginning to stir in his brain, and in opposition to Kitchener he had little belief in the Russian Army if it was not stiffened and supported by a constant flow of shells, guns, rifles, and cartridges. While Lord Fisher was urging his Baltic adventure and Churchill was preaching the Dardanelles crusade, Lloyd George was for Salonika, the Balkans, and an attack on Austria —a scheme from which he never swerved from start to finish.

It was natural, therefore, that our handling of King Tino of Greece, the great stumbling block to British Balkan policy, should incur his special wrath: "Tino," he said, "is the Kaiser's chief spy in Europe, and we write him lawyers' letters!" But he secured more unpopularity by the trenchant expression that he gave his views, than support for the views themselves, and, in February, he was observing gloomily that "while the whole press is describing the war as an unbroken success, the facts are precisely the contrary." The early spring, then, was marked by this rising note of warning, menace, and appeal from the new strategist.

Yes, singular as the fact is, Lloyd George had a genius for strategy. Whence comes the instinct for war? While Churchill in his young days was slaking his thirst for military glory on the fields of India, Egypt, and Africa, Lloyd George was defending Nonconformist trespassers on church property and slowly rising to fame as the hope of the stern, unbending pro-Boers. Yet both men possess the same aptitude for war.

And there was a further resemblance—a

defect—in their military mentality. Once they made up their minds they were immovable—no argument, no contention that the facts had changed since the original opinion was formed could move them in the slightest degree. Thus, neither of them was at any time a "Westerner," and while Churchill always believed that the war could be won through Gallipoli, Lloyd George was equally constant in his conviction that it could be won in the Balkans. This fixity of idea was all the more curious in Lloyd George's case—because in many respects his mind was so fluid and impressionable.

Somewhere in the recesses of Lloyd George's mind there moved a strange instinct, not always given to field marshals, but often to middle-aged civilians, like Cromwell, for knowing what was happening on the other side of the hill, or, in this case, across the sea and on the other side of Europe. As the compass turns to the north, so Lloyd George's instinct always turned in the direction of the menace. Conversation after conversation attested this uncanny prescience. But in the opening stages of the war his was the fate of Cassandra—to foresee and to be disbelieved on the word of the nearest Major-General.

But the man who simply sits down and prophesies correctly—and Lloyd George, too, like everybody else, made plenty of mistakes, notably on Russia and on manpower—is not destined to be the national standard bearer in a supreme crisis. Lloyd George had not only the energy of words, but the energy of action. He was full of offensive and defensive plans to meet the emergencies he foresaw.

Once he had taken up war as his métier he seemed to breathe its true spirit; all other thoughts and schemes were abandoned, and he lived for, thought of, and talked of, nothing but the war. Ruthless to inefficiency and muddle-headedness in his conduct; crooked, if you like, in the means where crookedness would serve his aim, he yet exhibited in his country's death-grapple a kind of splendid sincerity. And he was thrifty of human life. He would not press failures at the cost of huge butchers' bills. He was against prolonging the agony of the Dardanelles; he protested against the final and futile horrors of Paschendaele in 1917.

When confronted with the statement that German companies were by that date reduced to the strength of 70 men instead of 200, and that G.H.Q. therefore thought success certain, he brushed it aside as a truth-loving judge might a lawyer's formal plea. Of course, it may be said that in both these decisions he was influenced by his dominant idea of a campaign in the Balkans, but that does not alter the facts.

But what must be our main judgment on the personality itself, which more and more as this story proceeds casts the shadow of its influence over the troubled waters? A combination of enormous physical ability joined to a mentality so voracious of experience and so sensitive to atmosphere as to attain to greatness by the very variety and immensity of its attributes; a physique so constituted that sleep comes at will at any hour of the day, and that illness is only a high temperature—such are the capacities that make Lloyd George.

His is, no doubt, the practical mind, lacking the broad philosophic view that makes Lord Balfour tower above his contemporaries, and lacking the power of lucid and ordered argument in which Churchill shines. And yet, taking it all in all, in the sum of its qualities, its passions, its knowledge, its expression, its understanding of a whole nation, his mind is greater than Balfour's or Churchill's. Perhaps his most valuable asset is the amazing charm of his personality. Men will go in to him in a frame of mind charged with suspicion, believing him capable of any villainy. They will come out saying: "We have been misinformed; whatever that man is, he is no scoundrel or imposter."

In a word, he understands how to deal with the personal factor. He resembled Mr. Asquith in that he was always intensely interested in the personalities of his colleagues in office—but the interest of the two successive Liberal Premiers differed in its quality. Mr. Asquith was interested in the mental attainments of his

friends and subordinates, and his appraisement was often touched with a certain intellectual contempt, as of a superior mind detecting weaknesses. On such topics he would be ready to talk freely. Lloyd George, on the other hand, looks at his colleagues on the human and social sides. He would ask not what a man's brains were, but what his habits, his preferences, his private virtues or vices. As a consequence, his distribution of offices sometimes seemed almost haphazard.

Finally, he is a good friend while it lasts, but there are no lasting friendships at the very summit of politics. Once he is estranged, there is none of that lingering afterglow that makes us still cherish memory and hesitate to strike the one-time companion. Lloyd George goes right-about-face like a flash, and by this means reëstablishes his position even more firmly over the fallen body of his quondam ally. On the other hand, reconciliations with him are equally facile; but death alone can secure his lasting praise. This is well seen in the case of Lord Rhondda, who was his opponent and then his friend, and has been since so canonized by Lloyd George that no praise of him can be too high. It is his military aptitude shown in personal politics: no hesitation, no tenderness; make up your mind swiftly, and hit hard.

It would be interesting to inquire how much of the mentality that makes him great in war springs directly from his long training and preëminence as a political tactician. Much there is in common between the two arts. Both require prescience and insight into the mind of the enemy, a careful calculation of existing resources, adaptability to meet new conditions pushed to a supreme degree, dazzling rapidity of movement, cold caution at one moment and stark courage at the next. Not that Lloyd George is one who makes up his mind over-quickly and then repents. Until the actual moment of decision he is visibly undecided and is plainly influenced by the advice given him. Once his decision is taken, all is over, and further talk is so much waste of breath.

Yet when Lloyd George boasts himself as the last word in "political strategy," he does himself at once something more and something less than justice. He has made plenty of mistakes that would have ruined another man. When he has escaped the penalty he has done so by his genius for theatrical management, which always makes him withdraw a piece that has failed before it is actually hissed off the stage. He knows that the people see high politics much like a moving picture—they will forget that you have fallen down the stairs in the last reel if you are doing something brilliant in the present one.

He lives for fame. It is the passion of his soul and the light of his life: it has supported him in his terrible labors, and nerved him against cruel attacks. To be popular in both senses of the term, to be one with, and adored by, the people, to be at once a patriot, a hero, and a democrat, so that all three attributes mingle in the atmosphere of a single blaze of glory, such has been the desire of a lifetime achieved.

Nor has this career necessarily reached its zenith; there lie beyond it other heights that he has set himself to scale, and the record of his past and the still unabated fires of his late middle age promise him the fulfillment of his further desires. And, indeed, as long as he is alive he will never cease struggling upwards.

And if he can be contrasted with Bonar Law on the score of ambition, he differed from Asquith no less in the character of his personality. Asquith's intelligence and mentality were sufficiently simple for him to be able to describe himself and his own process of thought with complete accuracy. Lloyd George's are so complex that he never can. No description, therefore, of his mind, whether given by himself or by another, can hope to satisfy him; for what is true of him in one of his protean shapes must of necessity be false of him in another. Such was the character who, loaded with a legacy of Tory hate, and rapidly adding to the burden of growing unpopularity among his more passive Liberal colleagues, set out to save his country. How far he succeeded in realizing his ideals subsequent articles will show.

Working With Hoover

A Close-up View of a Great and Friendly Administrator

DONALD WILHELM

A FEW DAYS after I went to work with Mr. Hoover I received a letter from a Congressman addressed to "The Honorable Donald Wilhelm, Assistant to Mr. Hoover." Without trying to be funny, I went into the Secretary's office, laid the letter down on his desk, and said: "Gosh, do I have to stand for *that!*"

He laughed. It was a quick and spontaneous laugh, not loud, but pleasant to hear —a kind of infectious chuckle. In the office he doesn't often laugh. He smiles. A smile is better than a laugh. And he smiles often enough, considering all he has to listen to in the course of a day.

The fact is that I never succeeded in making him laugh very hard over a story. To be sure, the fault may have been the stories! A story, to amuse him much, must be objective, quite actual, with a demonstrable result, not a story turned on wit and the spinning of mere subtleties more or less salaciously flavored. For instance, he relished and repeated the story about the two sons of a thrifty Austrian father, a college professor, who saved his money, but died in the halcyon days before the World War, leaving his savings, share and share alike, to his two sons. One son was a thrifty soul who put all his share into a savings bank, adding thereto whenever possible. The other son boasted that he never saved anything except the bottles he emptied during his dissipations. When the war was over, and Austrian currency had pancaked in value, behold! the value of the savings of the thrifty son was about $3, while the wayward son had $18.92 worth of old bottles!

Perhaps the humorous, the anti-climactic value of this yarn appealed to Mr. Hoover. More likely, this story was for him one more historical contrast or illustration to add to his vast store, as well as a kind of practical compendium of working economic factors with bearing, for instance, on thrift. Being a conservationist with a scientific turn, he relishes thrift —in the sense of hoarding—about as little as he relishes wit for its own sake; *i.e*, he does not believe, I gather, in keeping coal under the ground though all earthly tenants freeze, or in conserving timber until all the trees decay. Engineers with imagination take such a larger view—the view that science will find a way! And it is with such men, those who are forever visioning conditions and achievements that do not now exist, that this man shares a *camaraderie* much more rich and enduring than any based on swapping Jimmy Walkerian fellowship and yarns.

Time and again I have seen his afternoon appointment list tied up in a knot or canceled altogether because in the offing appeared a scientist from his laboratory or a mining engineer from the far reaches of the earth with problems to ponder or a familiar reminiscence to share. And the most interesting and illuminating hours, the most precious hours I have ever spent with any man were those spent with him, often of a Sunday morning on the back veranda of his home or in the quiet of his study, when he told his views and speculations to me, or permitted me to sit at the ringside while, with others of speculative mind like his own, he had a great good time inciting thought, provoking admissions, testing theories, and suggesting or phrasing ideas that were to the "dismal sciences" of economics and government, I judged, as new and full of meaning as any news story ever is to the run of us.

It is not a true or an intimate concept of the man—the idea too many people have—that he is essentially only a high-

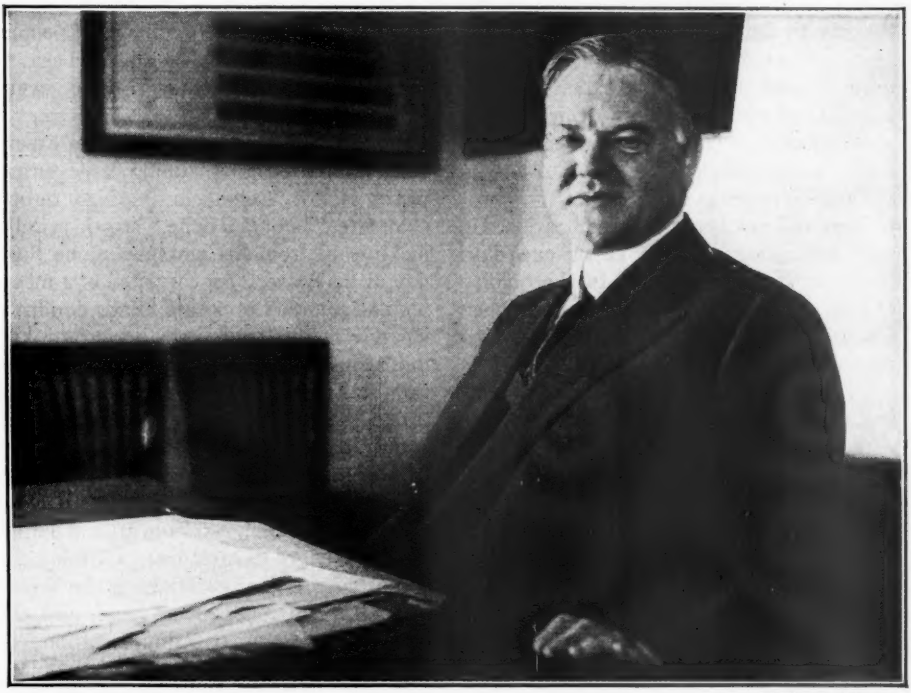
power machine, a kind of force highly energized, systematized, and methodical.

Mr. Hoover is eminently practical, to be sure. He teaches one how to work. Perhaps that is why those who have worked with him seem always to have a sense of gratitude strengthening their loyalty to him. I have yet to encounter the exception to that rule. That is one test of leadership—loyalty in subordinates—as every business man knows. Another is the ability to delegate authority and responsibility and, in the doing of it, to get the most from men. A third is the ability to select men. A fourth is the ability to plan.

I supposed, after only such contacts with Mr. Hoover as an interviewer for magazines has with a public man, that I might picture him surrounded by all manner of impressive organization charts, graphs, and such, with a lot of buzzing statisticians chalking up figures on scoreboards. I found nothing of the sort. Nobody handed me a blue print positing and defining a corral for me, free-lance and maverick in point of organization experience though I had always been. The day that I went to work, he said, in effect:

"We have for use by the Department of Commerce very little money over and above that required for routine activities such as those of the Bureau of the Census, Bureau of Lighthouses, Bureau of Standards, and so on. The only way we can make the Department of complete helpfulness to the American business public is to get the full coöperation of our business men. The only way we can do that is to show business men what we are trying to do. That isn't news; it's got to be interpretation, which means that the magazines can lend us a hand. That's your job—to get their help. Go to it, and if you need any help let out a yell."

A few days later I went to him and said: "Everybody in this Department is in touch with the magazines, and a lot of editors would lend a hand if they knew where



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they're at! I think all the magazine contacts ought to be headed up to one point."

Hardly an hour later I was called into his office to find half a dozen "important government officials." There was a ten minutes' discussion, and my recommendation went into effect so quickly it made me dizzy. Decidedly he is a "yes-and-no" man of quick decisions and receptibility to suggestions.

He never asks for periodic, personal reports to find out whether you've been clock-watching, whistle-jumping, malingering on the job, yet my experience was like that of every one else in this, that he always knew precisely what was going on. He is a nostrilic genius—he has a way of "smelling things out."

Men make or break an organization. He said something to that effect one day: that everything runs back to the quality of brains at work in an organization. Then I ventured to ask how he picked the men who worked with him.

"For personality," he answered, "training, experience, initiative, ability to work with others or to go it alone."

That was a good line! I repeated it to him some weeks later.

"But I couldn't have said that," he insisted. "I don't know. No one knows."

Making plans is for this man his inextinguishable pleasure. It is a kind of creation in which he no doubt finds decidedly useful the incredibly wide and rich range of general and specific information that he is everlastingly packing away in a retentive mind. Reading everything from history to fiction, from technical and popular magazines to poetry, from scientific journals to an endless round of personal and other reports, and seeing, always to some purpose, all manner of people, his facility in making and applying plans reminds one of the facility of a military strategist ready for any emergency.

Planning is a kind of continuous activity, from which he gets, I imagine, the largest possible satisfaction, all the more so because the infinitude of legal restrictions—"red tape" is the usual phrase—imposed on all administration in Washington, constitutes an everlasting challenge to the business of getting things done. The "City of Procedure" is no place for a pioneer who wants quick action here on this earth. It takes patience and courage and infinite resourcefulness to accomplish anything at all new or get rid of anything old in Washington. There, procedure is the thing. In a corporation the annual or quarterly balance sheets tell the story; but government has mainly to do with intangibles, such as the social and economic welfare of millions of people. All the same, careful planning is basic to the success of any enterprise, as every business man knows.

The record of Mr. Hoover as an executive habituated to planning large enterprises is not, except in its high lights, complete. "I got *that* done," he said grimly, looking up from his newspaper one Sunday at his home. *That* consisted of a meeting and union of opposing minds dominating one of our supremely important key industries, a matter of swift and sure action and reasoning at just the right juncture. Planning, always successfully it seems, to wrest metal from the lap of Mother Earth in Australia, Siberia, China, India, and elsewhere, planning Belgian relief and the Belgian Educational Foundation, relief of Central Europe during the reconstruction period following the World War, Russian relief, flood relief, and the United States Food Administration—to go no farther—is test enough of the planning ability of any man. But somehow these endeavors, though for the most part new in kind, comprehending the effective and honest handling of many millions of dollars and managed in some cases by this engineer while he was carrying one or two or more full-sized jobs, lack reality to most of us until we have had part in or actually seen "with our own eyes" what was achieved.

After all, it meant rather little to me that as diversion in the evenings the Secretary of Commerce had organized and was directing the American Relief Administration in Russia. He seldom spoke of it, and seemed just as much interested in energizing our own-your-own-home program and several other programs, in-

cluding that of the American Child Health Association.

When it fell to me to go to Russia—I didn't even know whether Riga was in Russia or elsewhere—he unrolled a map one day and described the American Relief Administration as a simple thing to organize! Here, he said, are the ports, the primary and secondary warehouses, the distribution centers, and so on, all managed by two hundred Americans over there. He didn't describe a railroad system that at the outset was so much a wreck that whole trainloads of food literally got lost. He didn't speak of towns and villages that are like islands in seas of endless snow, with no means of inter-communication such as we take for granted—not even navigable roads most of the year. He didn't mention 160,000,000 people devastated by civil war, starvation, and typhus, which together were threatening Europe, rapidly destroying youth, and piling up bodies in heaps no one could be persuaded to remove.

When I returned from Russia I told him of a day I had spent in a large hospital on the Volga, where the head surgeon informed me that, at the time the Americans appeared, the hospital had hundreds of patients, including many facing death from typhus, but had no surgical instruments, no blankets, no sheets, no uniforms, no food, no anæsthesia, no drugs—not even any gauze. Then I described one of tens of thousands of incidents that occurred in Russian homes, repeating what a teacher in a small town had told me. He had lost his family one by one until he had only one little girl left. She was very ill—starving—when a neighboring woman, the last of her family, came in, went away, returned to share her last piece of cabbage. She kindled a fire in the brick stove, and was making soup, when the little girl, hungrily looking on, died.

I told this story, and was about to tell how one day a young American appeared, called together a few responsible citizens, gave them instructions, and then went on, to be followed in a few days by other Americans bringing in yellow corn, which the people in this small town had never seen before; and how the townspeople knelt on the snow and thanked God. But I didn't complete my story. This man that some suppose is a mere "mechanical man" rose abruptly and left the room. I followed him. His cheeks were wet, but he was angry that I had found him showing such emotion.

He hates "this personal stuff," as he told me when there appeared in a weekly magazine an article about him that many public men would gladly have mortgaged their homes to get published about themselves. This article you are reading now would never see the light if he saw it first, and I don't expect ever again to see the other side of his threshold unless he remembers the Biblical definition of a devotee—one who testifieth to his own hurt for a friend.

The suggestion is too frequently made that, because Mr. Hoover achieves much and has held so many high offices, he has ceased—as happens in many cases—to be a member of the human race. One of the problems confronting any important executive—any corporation president, for instance—is how, in spite of personal success, he may remain a member of the human race instead of climbing up the ladder and pulling the ladder up after him. In Washington, rather more than in business life, that procedure is a dangerous one. Accordingly, a public official in the "City of Procedure" usually feels it a duty to get all the pleasant personal publicity possible.

There are two fairly sound reasons for this typical attitude. *First*, Washington is like a besieged garrison in which a kind of guerilla warfare is always going on—in which all sorts of organized minorities and groups are forever gunning for some one. *Second*, in Washington as well as in other centers of government, it is not so important to accomplish much as it is to seem to accomplish much. It is altogether possible, in other words, for an official to accomplish rather little and to get great glory and support for it, while another official accomplishes tenfold more and gets no glory at all. There is simply no getting around it—in the long run public officials

in Washington, even Presidents, usually gauge their success largely by what public prints say about them—which is, more or less, as it should be.

But Mr. Hoover usually runs counter to this rule. He does *not* seek personal publicity. I have in my files an article about him carefully phrased in accordance with the assignment of a magazine editor. Because I quoted Mr. Hoover I sent this article to him for his approval. Through the title in his unmistakable handwriting is a statement covering a lot of ground: "Please kill this. I want no personal advertising. H. H."

Whereas dozens of public men will sign almost any large or small bit of "ghost writing" without having dictated a word of it, this man aroused great surprise and consternation in me because he would never—there was not one exception—put out as his own statement anything that he did not laboriously ponder and prepare. Granting his thesis that he would not stand for ghost writing, and granting that no one can successfully counterfeit either his substance or his compact sentence formation, I argued with him that the magazine typescripts that again and again I laid before him were simply transcribed from his own dictation and my shorthand notes, that his name on them gave them importance, that this was the way to sell the Department to the business public. His answer always was that he would "write his own."

And writing is not easy for him. One week-end when he was supposed to be ill I found him in his study with two office stenographers working in relay while he prepared two speeches. It was then that he groaned, "If any people earn their money, you writing fellows do."

He writes very little beyond what he has to write. His method of writing, telling as it does a great deal about the man, can be suggested by the preparation of the little book, a classic of its kind, called "American Individualism." In a drawer of his desk at home he had a statement on this subject that he had prepared, laboriously no doubt, to deliver at the commencement exercises of a Southern university. For some reason or other he was unable to attend those exercises. When he referred to this statement to make a point one Sunday morning, I got my hands on it, asked permission to read it at leisure, took it away with me, drove home as fast as I could, sliced out a swath of it that night, and mailed it to the editor of the WORLD'S WORK. The next day I laid on Mr. Hoover's desk a telegram of congratulations, accepting the article. He just looked at me with an air of making some kind of mental reservation, and for several days I kept under cover.

After the article appeared, at a time when there was a vast deal of radical propaganda in the air, there were innumerable requests for reprints for distribution by employers and others. Accordingly, I disappeared for a day, came to the surface in Garden City, told the publishers of Mr. Hoover's article that there was a fighting chance to get a book by him, and was asked to write a contract for him. The next morning, making sure that he was at leisure, I casually reviewed the need of reprints or a book, laid that contract down on his desk—and nearly fainted when he signed it!

"Now," he said, "if I'm going to do this thing I'm going to have some fun out of it. You take that manuscript down to the best printer in town and have it set up in large type and proofs pulled on big sheets about this size"—indicating about 20 x 30 ins.

"But, Chief," I pleaded, "it will cost a small fortune to make revisions that way and the publishers probably won't use the same type face anyway."

No answer.

Then the "fun" started. He would send a set of marked-up proofs down the hall to my office because, since I write shorthand, I could read his abbreviated handwriting. That evening I would figure out these markings, type them, paste the typings into place, and send the proofs down to the printer next morning. Back would come a clean set. Back and forth they went for weeks on end, and time and again I had to telephone the printer to jam the revisions through and get revised proofs

back within an hour because Mr. Hoover wanted them at once. At last he called me in—every experienced writer has to "try out his stuff on the dog"—and said, "What do you think of it now?"

I hedged. "Well, for one thing, Chief," I ventured, "it doesn't taper off toward the end. But that's easy—a few connectives can be knocked out——"

"You do it," he ordered.

With a feeling that I was tinkering with a modern Magna Charta, I toiled extensively, with beautiful results, I thought. As an editor of connectives I concluded, I was simply wonderful! So one morning after I had carefully sensed the atmosphere thereabouts to make sure that the Fates were propitious, I put on his desk the finished product of my handiwork and returned in an hour.

"Chief," I ventured, "how do you like it now?"

He chuckled. "I don't like it."

"Shall I heave it into the waste basket?"

No answer.

"Thar she blows!"

Then he smiled. And a smile, remember, is better than a laugh.

One of not a few books that numerous publishers have vainly tried to get Mr. Hoover to write might be called "Applied Economics." Yet he was not by early training an economist in the strict sense. He was a mining engineer who began the long climb upward as a water boy in a mine during the summers of the years in which he was working his way through Stanford University. As an economist he is self-made. In other words, he has for many years worked, and is now habituated to working, from facts and variables back to theory, rather than from theory toward justification of it. His economic views are therefore being continuously revised, and they reflect decided individuality of thought.

No other public man could or would have visioned and have energized, for instance, the movement to level out the peaks and valleys of traditional periods of prosperity and depression. Few would have had the courage to establish on their merits and to make useful in the public sense our trade associations, even though our government had to insist during the war that all groups must organize. And few, to take another example, would have tackled the problem of getting Congress to authorize a treaty among numerous western states so that the Colorado River might be fully developed as a source of irrigation and power.

He gets his mode of fun and other satisfaction out of "crystallizing out" such problems—to quote his phrase—and out of grappling with them as if they had physical entities and he were out to win in what is commonly called a finish fight. Thus, in one instance, he good-naturedly told a group that he was out to win them to the Colorado River plan, and that now, having assembled them as it were on a mountain top as his guests, he had laid in enough supplies and cigars to last just so long, and accordingly expected a unanimous verdict by the jury in short order. And his practical joke worked. The ease with which he takes up such problems, combined with his great contribution to the business of making economics a popular science, makes one wonder if there is any problem or activity he could not master.

Because such problems absorb him so completely it is difficult for him to "let down" during working hours. He has the knack of the trained executive of so organizing his routine work away from him that his desk is always clear except for the thing in hand, but his brain is always working on many things at once. Sometimes you see him pace swiftly back from lunch at a club, head bowed, pass into his office without a word, close the door, seize a pencil or telephone, or call a stenographer or assistant, and go to work, like a writer in the throes of a big idea.

I never heard him say an unkind thing about a subordinate—his way is to talk to the subordinate himself, and to suit the occasion to the situation. With more enterprise than judgment, I made more than one blunder myself, and each time he explained patiently why I was wrong, instead of landing on me, as the saying is, for being wrong.

We all of us set up barriers of some sort

against the world. During office hours his barrier and refuge is work. Outside of office hours his refuge is informal home life, long and restful hours with intimate friends, and his barrier is a manner—not a mannerism—that is the result of being shoved before the footlights by circumstances in themselves no doubt interesting. You do not feel that public life has embittered him; you do imagine that it has brought its share of hurts and made him reasonably suspicious of the game, which yet remains for him a challenge and a problem.

When he is out before the footlights or at a dinner he usually has to make a speech. As one may judge by his thoroughness in writing anything that goes out under his name, he will not permit himself to speak at random, and when he must make a speech he seems afraid. This is understandable, and would be remediable, if he permitted himself to cast off the tight leash and would permit himself to think aloud as fluently and delightfully as he does with intimate friends. Probably he is grateful that the microphone has displaced the political stump.

He does not play games such as golf. He takes no daily exercise. No physique would stand up under the punishment that many cigars, much coffee, and his ceaselessly active mind give his body if it had not been conditioned by years in the open air and by years of "roughing it" in the open, often on horseback, as a mining engineer. I made a long speech to him one day about the theory and need of systematic exercise. No answer—except that when some months had passed and I was down and out, he was going strong.

He follows baseball and football, though he never sees a game, which proves that he is truly American. He likes to fish, and it is no fisherman's tale that there are numerous cases in which he has sat on the deck of a boat anchored in Chesapeake Bay and pulled out fish after fish when those beside him didn't get more than a nibble. Moreover, he takes the vicissitudes of fishing like a true Ike Walton. For example, on one occasion when casting a line he sank a large hook deep under a tendon in his thumb. Every one present tried to extricate that hook, the ship's engineer using a pair of pliers, but the Secretary didn't complain. As a matter of fact, after a run to shore and the services of a physician, the patient packed his pipe a bit tighter than usual and insisted on going back to the problem in hand.

Another thing he likes to do is to come home from a formal occasion, seize on one of his short-stemmed well-proved briars, and relax. Then, if there is a man guest who also enjoys a midnight snack, he leads the way to the pantry, rummages in the ice box and bread can, and when comfortably perched on the edge of a table or astride a chair with something to eat in hand, is ready to call this the end of a perfect day.

There you have a waysider's honest impressions of the man. He is such a man as a good fisherman or a good woodsman or any other good pioneer, not excepting an economist, would find safe and companionable, no matter what the weather. He is, on the personal side, an extraordinarily simple man with a besetting fear of crowds, ostentation, and confusion, endowed with mental and other faculties so unusual that it remains a paradox to find him working full tilt in the "City of Procedure."

Even though it is evident that he could earn in private life much more than any Federal office can ever pay him in dollars, probably for him, as for many other successful men, the challenge of dollars is not enough. Certainly, if he has reached the point in life where getting worthwhile things accomplished is the main reward, there is ample room for him in Washington. Anyway, his impress has decidedly been felt by every one who has worked at all intimately with him. The highest compliment I have ever heard one adult pay another was the statement made by a man who worked for him: "There is hardly a day goes by in my business or personal life that I do not make one or more decisions as nearly as I can figure them out on the basis of how my old Chief would make them."

Where White Men Travel Alone

And Few Return to Tell the Story

GEORGE MacADAM

An etching by Levon West *Courtesy Kennedy & Co.*

In the Canadian Northwest Territories is a "no man's land" of thousands of square miles. Only two white men have crossed this icy wilderness—Rasmussen, the Danish explorer, and Major Burwash, who was sent out by the Canadian Government to study the Eskimo. He nearly perished on his journey, as told here in a narrative based upon his official report.

ARCTIC TRAVEL is a series of "if's." The answers to those "if's"—haphazard answers that mean life or death to human mites—are given by the wind god, the ice god, and the other rough old gods of the elemental world.

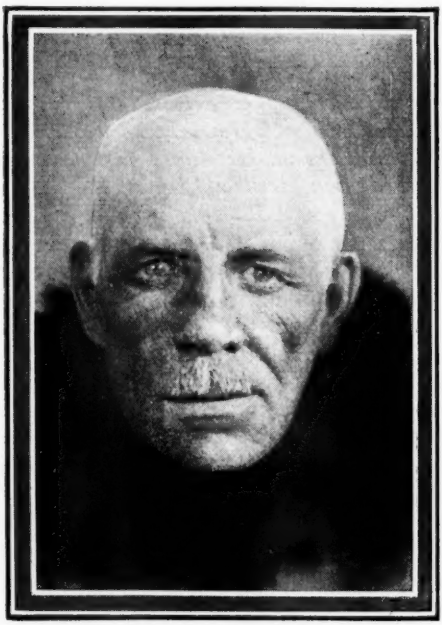
This is the story of a man whose obscure duty took him into a "no man's land" north of the Arctic Circle when the old gods chanced to be in boisterous humor. Were he one who believes that fate conspires against a man, he would have concluded that the gods who were before Jupiter had looked upon him and—"thumbs down." It is the story of a fight, a long, day-after-day fight in solitude, except for a few Eskimo companions—a fight against wind, cold, snow, hunger, blindness. It is the story of a human mite that had stubborn courage in its soul and triumphed!

The Eskimo race is threatened with extinction. The Canadian Government, anxious to forestall such a catastrophe, is gathering information upon which it can base a policy. The far-flung posts of the Royal Canadian Mounted Police have supplied much information. But there was a geographical gap, hundreds of miles in breadth, in this information, a gap that it was most important to have bridged, for in this practically unknown

territory lives the Eskimo closest to the stone age—the cultural condition of the Eskimo before the white man brought him rifles and shirts and canned food.

Civilization, represented by the explorer, the trader, the "Mountie," has crept along the Arctic coast of the American Continent, from the east and from the west. In the east, the farthermost post of the Royal Canadian Mounted Police is at Chesterfield Inlet, on the western shore of Hudson Bay. The traders have pushed up Roes Welcome and have established their outermost station at Repulse Bay. In the west, the farthermost post of the Royal Canadian Mounted Police is at Tree River. The traders have pushed through Dease Strait into Queen Maud Gulf and have their outermost station on King William Island.

Between King William Island and Repulse Bay stretches a territory so inhospitable that it is a barrier between west and east. Only one white man, I believe, had crossed it—Rasmussen, the explorer. Now one other white man has done it—Major Lachlin T. Burwash, a mining engineer, an employee of the Canadian Government since 1899; during most of that time he has been within a day's walk of the Arctic Circle. (His only absence from Department duty was during the World War, when he was a major in an engineer corps, saw twenty months' service at the front, was wounded, gassed, and finally sent home an invalid.) In his more recent service in the Arctic, he gathered the information necessary to bridge the gap in the knowledge of the Canadian Government concerning Eskimo conditions. He has written a report. This is the first—probably the only—story of his trip to be given to the public.



MAJOR BURWASH
A pioneer north of the Arctic Circle.

The trip began in midsummer aboard a railroad train pulling out of Ottawa. The real story begins months later, when three sleds pulled out of the Hudson's Bay Company's outpost on King William Island, and thirty dogs and four men—one white, three Eskimo—headed east over the ice-locked waters of Simpson Strait.

It was on September 5th that Major Burwash reached the Ultima Thule of navigation from the west. The first lap of the voyage in Arctic waters—from the mouth of the Mackenzie River to Cambridge Bay—had been made aboard the S. S. *Bay Chimo*, the Hudson's Bay Company's supply ship; the second lap, aboard the *Fort MacPherson*, a Hudson's Bay Company's schooner with gasoline auxiliary—the only small craft adventuring among the reefs and shoals of Queen Maud Gulf. At the fur company's outpost on King William Island the explorer went into quarters for the winter.

Wind, almost always wind, often a gale! On September 7th, snow. Thereafter, snow snow, snow! A gale plus snow means a blizzard. Sometimes they raged two or three days. They averaged one every third day.

During his many years of northern work Major Burwash has reached 80° north; he has crossed Baffin Island (the only

white man to accomplish that feat); and he says that King William Island has "the most disagreeable winter climate" of any place he has yet visited, not because of the temperature—35° below zero was as far as the mercury dropped—but because of the wind and the snow.

It was here that Sir John Franklin's expedition met its tragic fate. The *Terror* and the *Erebus* were crushed in the ice off the east coast; the survivors, in constantly lessening numbers, struggled down to the south shore of the island—"the men fell down and died as they walked," to quote the statement made years ago to a searching party by an old Eskimo woman who saw that heroic band making its fight for life—the last few perishing on the mainland, across Simpson Strait.

It had been Major Burwash's plan to begin his sled journey from King William Island to Repulse Bay as soon as the winter storms had lost some of their fury. The trip was to be made in two partly overlapping stages: *first*, to Murchison River, where he would cache part of his supplies, establishing an advance base camp; *second*, doubling on his tracks, he would return to King William Island, load the balance of his supplies, and make the final start east.

But there was a difficulty at the outpost on King William Island. It had been growing in seriousness all through the winter. By the end of February it had become a crisis: the supply of dog-food, short-rationed for months, was now almost exhausted. Without dogs, travel on foot was impossible. This crisis was as impossible to foresee as is a turn of the dice.

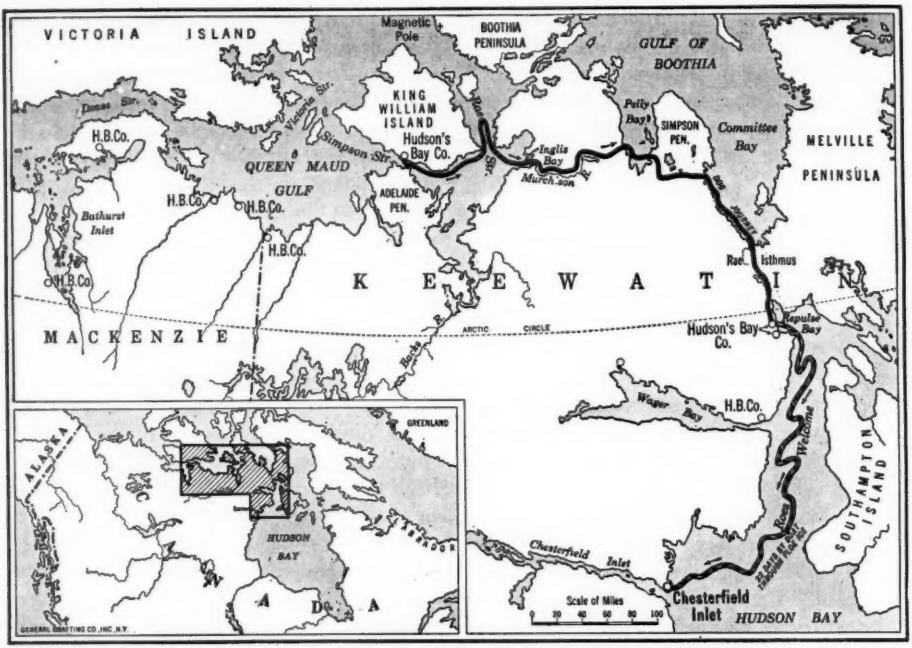
Fish are abundant in the waters of King William Island; but, after the arrival on September 5th, there had been opportunity to spread the nets only two or three times before the ice formed, and that potential supply of winter dog-food was inexorably sealed. Then the caribou. Their annual migration had always brought a vast herd across Simpson Strait. There were signs of their visit the previous year. They should have been passing southward about October 1st. By the end of the month the men gave up watching for them. No caribou! A few seals that appeared on the ice were speared. A polar bear was shot a few hundred yards from the shack. Otherwise—nothing!

On several occasions Eskimos from the east had come to the outpost with fox skins to trade. They had told of a native sealing village on the ice somewhere in the middle of the water off Murchison River. Here was a chance to replenish the supply of dog-food. And so it was that on March 2nd—weeks earlier than Major Burwash had planned—three sleds pulled out of the Hudson's Bay Company's outpost on King William Island, and thirty dogs and four men—one white, three Eskimo—headed east over the ice-locked waters of Simpson Strait. On one of the sleds was the dog-food that could be spared the travelers: enough to feed the thirty huskies once. It was believed that the native village was four days away. The ice was smooth. Good time was made. When darkness came, an igloo was built. It takes an Eskimo about an hour to lay up, block by block, one of these snow houses, including the entrance tunnel, some thirty feet long, which serves as a wind-break and as a place of shelter for the dogs. The dogs were kept in their harness—that held them from making a break for home.

The white man and the three Eskimos crawled through the tunnel, over the dogs, into the igloo. A Primus stove was lighted, and food was cooked. The white man traveled native-fashion, eating the same food, sleeping between furs on the same bench of snow. A sleeping bag was the only demarcation between white and Eskimo.

The dogs in the tunnel howled.

Next morning the three sleds were on the move at 8 o'clock. Weather, clear and cold; trail, good; everything going fine, even the hungry dogs. An old igloo that had been built by one of the Eskimos was reached. Sun and frost had lined it with ice. This made it "uncomfortable" (the word is Major Burwash's). But the stop was only for the night, and there was a caribou cached near by. So the ready-made igloo was accepted, and the time was



THE TRAIL THAT MAJOR BURWASH BLAZED ACROSS ARCTIC WASTES

So as to indicate more plainly the practically unknown region traversed, the area covered by the larger map is shaded in the smaller map, which shows the greater part of Canada.

spent in chopping the caribou out of the ice. One carcass served to thirty starving huskies is not much. In the morning, the first man to crawl through the tunnel discovered a blizzard in full blow. He crawled back into the igloo. The four men sat there for a very long day. The Primus stove burned, but its heat could not kill the nasty chill that came from the ice that lined the igloo.

The dogs in the tunnel howled.

The next day was like the day before, and the following day was the same. The fourth day was different. The wind went down. There was a heavy ground drift, but it was decided that a start should be made. Then the storm rose again in all its might. That was the first diversion. Then the roof of the igloo went bad. We all know that heats ascends, but there are some circumstances that give us a more acute realization of everyday fact. Life in that igloo supplied just such circumstances: at the men's feet the temperature was 17°; at their knees, 22°; and above their heads it was warm enough to thaw holes in the old roof. The blizzard whistled through every hole and put on the floor little piles of snow that rapidly became bigger. A new roof had to be built, or snow, not men, would have occupied that igloo. The one ration of dog-food was given to the animals. Otherwise, the day was the same as the three that had gone before it.

That night the storm blew itself out, and a start was made when the sun rose, about the middle of the next morning. The blizzard, in itself hard luck, had left hard luck in its wake.

The ice shoeing came off the big sled, making progress very slow. At 3 P. M. the big sled got down in a crack and had to be unloaded. Igloo built at 4:30 P. M.

Mar. 9: Two hours lost patching big sled, but a start was made at 10 A. M. Dogs showing the lack of food, dry rolled oats being all we can give them. During afternoon high pressure ridge encountered. To cross this, we had to put all the dogs on each sled in turn. Igloo built in some very rough ice.

Mar. 10: Late start. Much time lost patching dog harness, some of which the dogs had eaten during the night. Poor time made all day as the dogs are failing rapidly. Found we had lost important case off sled.

Mar. 11: Unloaded one of the light sleds. Sent Angnowya back with it to recover lost case. Rest of us spent day drying sleeping furs. During the night the dogs raided the sleds, eating 10 lbs. rolled oats, also boots and furs.

It was very slow going the next day. It was hard to keep the dogs on the move. There were many stretches of rough ice. The "zero hour" was not far away.

Tracks should be found soon—unless the sealing village had migrated! Two Eskimos were left to drive the dogs; the third Eskimo was sent two miles to the right of the sleds; Major Burwash went the same distance to the left; and thus the three divisions, out of sight of each other, the ice hummocks narrowing the range of vision, plodded across the field of white, mere specks, human and canine.

The sun reached the meridian, began its drop to the horizon—and the specks continued to plod across the field of white.

It was Angnowya who discovered them: first, tracks that circled and zigzagged, the tracks of a hunter, his dog on leash, seaching for a seal-hole, tracks that it was useless to follow; then, tracks that went straight, numerous footprints of men and dogs, tracks that it was good to follow. And Angnowya came back with a native and four dogs—the sealing village was two miles to the south, and luck was good, and dog-food plentiful. As the travelers approached the village, the women came running from the igloos, each with a big knife in her hand, and, solemn-faced, began circling about the sleds. This is the Netselingment form of welcome. After that formality, every one helped build a big igloo for the strangers. When it was finished, Major Burwash gave a housewarming, inviting the entire community to a feast. He gave them tea and hard-tack.

The igloo was full of natives all the next day. They came and they went; they sat and they talked; and the white man provided tea and hard-tack. The following morning the hunters went out to the sealing ground: the village had settled back into its routine life. Then came a blizzard. The village was "storm-stayed." Once more the igloo swarmed; once more tea chest and hard-tack box were opened. The storm continued all the next day; so did the swarm of guests. Then came the third day of snow and hospitality. The host got his guests to build him a small igloo adjoining the big one, and into this he escaped.

It was a four-day blizzard.

The morning of the 19th brought fair skies; and the travelers bade good-by to the villagers and headed across the ice toward the mouth of the Murchison River. The dogs, fed back to normal strength, made good time. Two days of head winds and bitter cold to face; one day of drifting snow to plow through; two days "storm-stayed" by blizzard; six days of good weather; and then, on the afternoon of March 30th, the three dog teams pulled into the Hudson's Bay Company's outpost on King William Island, having succeeded in establishing the advance base camp on the Murchison River. The returning sleds were heavily loaded with seal and fish and caribou. No more short rations at the outpost that winter!

Three days after their arrival, an unexpected peril loomed suddenly.

April 2: Dog sickness has appeared at the post, so no time will be lost in getting our dogs away.

A really sick dog was an unpleasant thing to see. The initial symptoms were much like those of distemper; if the dog got worse, which was usually the case, he frothed at the mouth, staggered, fell down, dying in violent paroxysms. A really sick dog was a particularly unpleasant sight for a man who had six hundred miles to make across a waste of ice and snow, his life dependent on thirty dogs that had been exposed to the infection.

There was harness to be repaired, a sled to be overhauled. This work was hurried. On the morning of the 5th,

Major Burwash, with his Eskimos and his dogs, left the outpost on King William Island.

The original itinerary called for a visit to the Magnetic Pole, a hundred miles to the north, where scientific observations were to be made. Stubborn courage now got the better of good judgment: Major Burwash, instead of traveling steadily eastward and reducing as quickly as possible the six hundred miles between himself and Repulse Bay, *turned north.* Two days later he was at Todd Island. Here there was a sealing village, the natives whose village he had found when his dogs were starving having migrated.

April 7: Dog sickness has developed in my team, three dogs having died. I managed to secure two new ones, which leaves me still all right.

He left Todd Island, *still traveling north.* Another sealing village was reached. The natives built a large igloo. Tea and hard-tack were served. The feast over, camp was made for the night.

When Major Burwash, by the light of a bleak dawn, crawled through the igloo tunnel, he found three dead dogs, two others in violent paroxysms, snapping and snarling. In that cramped space, a sick husky is a mean thing to encounter. You must watch your chance; then—quick! a mittened hand on its head, a knee on its neck, and hold it fast while you work your way by it.

Five more dogs were purchased. And the teams pulled out of the village, *still traveling north.*

April 11: In the morning I found that two more dogs had died. Both teams seem badly affected.

Only a few men have reached the Magnetic Pole. Major Burwash now realized that he was not to be one of them. The entry in the diary for April 11th continues:

It was decided to run for Murchison River and then to push on to Pelly Bay, where, in the event of more casualties to our dogs, fresh ones can be secured. We missed the last native village. Camped on the ice for the night.

"In the event of more casualties to our dogs"—!

April 12: This morning, three more dogs found dead. Traveled south, making very poor time. At 5:30 P. M. reached abandoned native village on the ice. Camped.

April 13: More dogs found dead this morning. Traveled west, toward the coast, over

PROMINENT CITIZENS NORTH OF THE ARCTIC CIRCLE

The Lyons Inlet man (left) and the Pelly Bay medicine man (right) are outstanding men of intelligence north of the Arctic Circle. Angote, from Boothia Peninsula (center), a good reliable type, was head Eskimo for Major Burwash on his journey.

very rough ice. Two dogs died on the trail during the day. Very poor time has been made.

They were now making less than ten miles a day; the dogs were dropping off; *and Pelly Bay one hundred and fifty miles away!*

Two days of traveling, two days without further mortality among the dogs. In the twilight of the 15th the salt water ice of Rae Strait was left, and the teams pulled on to the snow at the mouth of the Murchison River.

In the morning, more dogs dead! At 7 A. M., a start was made. Four hours later the advance base camp was reached. Luck now smiled—a meager smile. A native camped here, and he had two dogs, also a wife and child. Major Burwash wanted the pulling power of those two fresh dogs; so he hired the native, despite the handicap of family, to help as far as Pelly Bay.

Luck again smiled a meager smile: two natives arrived with a two-dog team. One of the natives had a wife and child. The major needed the pulling power of the two dogs and accepted the handicaps.

The loads were drastically winnowed; the stocks of ammunition, trade goods, clothing, kerosene, food for man and dog were reduced. About one half of the sled burdens was discarded. The white man was taking a gamble, his hand forced by fate: if caribou were not found, or if the natives were not, as usual, at Pelly Bay—why, then there would simply be one more of those tragedies of Arctic exploration. The new arrivals had to return to their camp to collect their outfit. While he waited their return, the major "took magnetic observations." Truly, devotion to science is more potent than first love.

April 19: Three more dogs died last night. A number of others badly affected and will probably die. Much of the day spent in again overhauling the outfit. It looks to-day as if I may get away from here with fifteen dogs, counting those belonging to the new natives, but not more than ten of these will be of any value, as the others are showing signs of the sickness.

April 20: Two more dead dogs. Broke camp at 8 A. M., but made only a few miles after a day of hard work. Decided to break loads into three trips, as the dogs have practically no strength, but may get along with very light loads.

And so they journeyed—forward, then back; again forward, again back; then, for the fifth time, over the same old route. Not till this last trip was made, could they say that they had really achieved an advance on Pelly Bay. And the dogs continued dropping off: April 23rd, one dog; April 24th, another, "the best of the team"; April 25th, another; April 26th, still another.

And the two children cried—to quote Major Burwash: "They howled like hell." Among the Eskimos it is taboo to spank a child. When a baby is born, it is given the name of an outstanding member of the tribe, and the spirit of that person is believed to act as guardian until the child reaches maturity. If the child is spanked, it is believed that the spirit will quit his job. But one day, when a father was with an advance team, and his offspring was vocally engaged, Major Burwash said a few feeling words about spare-the-rod-and-spoil-the-child. The mother was receptive. "She did a good job. The kid fought back, but the mother got the decision." Immemorial custom dies hard: a few hours later, the child was again "howling like hell."

Luck, however, smiled—a substantial smile. Three caribou were bagged one day, five a few days later—food for men, women, children, dogs.

April 27: Heavy storm all day, keeping all hands indoors.

During this forced intermission, when the white man had nothing to do but think, a discovery was made. When he left King William Island he had twenty-five gallons of kerosene, carried in five gallon cans. This was for the Primus stove that supplies warmth to igloo, heat for cooking, heat for melting snow for drinking water. At the advance base camp, when loss of dog power had made him reduce sled loads to skeleton proportions, cans of kerosene had

been discarded. And now, on this day of blizzard, it was discovered that the last can on the sleds had sprung a leak; only a few quarts were left. One more thing for the white man to think about.

During the night the snow stopped. Early in the morning, leaving the women and children in their igloo, Major Burwash and the Eskimo men started ahead with the advance loads. They were seven miles from camp, working up into a rough hill-country, when suddenly a blizzard swooped out of the west. The loads were cached and the empty sleds headed for the igloos. "The blizzard quickly developed into the worst storm of the year." To reach the igloos, they had to face the gale. In dense, swirling waves the storm rushed at them, swept over them—six specks, shaping their course only by wind and light, in a mad sea of snow. They felt the sting, the pain, then the numbness of frostbite. Hour after hour they battled, as a shipwrecked sailor battles in a rough winter surf. Seven miles—nine hours—then the igloos and a Primus stove. Every one of them bore scars from that battle royal with the wind god and the snow god. All were frozen in one or more places, the white man in seven, including both forearms.

April 29: Morning, still very stormy, but by noon the wind had dropped sufficiently to let us get away. When the cache on the hilltops was reached, one large igloo was built. From now on we will be reduced to burning one Primus stove, and that only long enough to melt snow for drinking water.

This meant that all lived in one igloo, that all ate raw meat.

More days of tedious movement, back and forward over the trail.

Another day of blizzard—May 3rd—made the igloo so cold without the Primus stove burning that all crept between the sleeping furs and waited for the storm to blow itself out.

Two days later, Major Burwash, with an advance load drawn by six dogs—all that were left—pulled into the sealing village on Pelly Bay. It was a shrunken village that he found. It was so late in the season that instead of fifty men there were only six, all the others having gone to Repulse Bay to trade. Luck, however, smiled: Major Burwash succeeded in getting ten new dogs (he wanted more) and he succeeded in buying seals and fish for dog food.

May 6: Spent day in camp overhauling and again reducing outfit, as we must make the trip to Repulse Bay without relays as fuel is almost exhausted and food none too plentiful as we find that the last case of hard-tack has been partially soaked with kerosene.

The two Eskimos, with families as handicaps, now quit. The party, reduced to four men, broke camp the following morning and started on the last lap of the sled journey. The second day on the trail there was a blizzard. The day was spent in an unwarmed igloo, between sleeping furs.

May 10: Weather turned very warm, softening the snow and making the trail very bad. We started with full loads, but soon had to put all our dogs on one sled at a time, and traveling this way we made poor time.

But worse than the soft trail was the mist given off by the melting snow. It made a thick fog. The party was traveling south, and the sun was behind the fog. To look into it was like trying to look through illuminated ground glass. It strained the eyes trying to focus them. Snow goggles were of no use.

The next day they broke camp at 4 A. M., and on the following day at 2 A. M., in an effort to get ahead of sun, melting snow, and mist. But eyes were beginning to ache; sight was beginning to fail. On the evening of the 12th,

The snow will no longer stand up for the roof of an igloo, so we built only a four-foot wall and drew a sled cover over for the roof.

During the night a blizzard swept out of the north, and the canvas roof flapped. In the morning, everything inside the igloo was under a foot of drifted snow. The storm lasted all day, and the men lay between their sleeping furs—waiting; the Primus stove was lighted only to melt a

little snow for drinking water; meat was eaten raw. Another 4 A. M. start. Another day of mist, of aching eyes, of failing sight.

May 15: Strong N. W. wind with snow drifting, but we cannot afford to delay.

One pint of kerosene! May 16th, eleven hours steady travel—May 17th, ten and a half hours—"My eyes are failing very quickly"—May 18th, fifteen hours.

May 19: Start made at 3 A. M. White fog. Visibility nil. Myself and all three natives practically blind. We start with the intention of pushing through to the fur companies' posts at Repulse Bay, even should we be compelled to abandon our loads.

Twelve dogged hours; twelve hours of slow, stumbling progress, during which big black boulders seemed only vague shadows; and four men, *sled loads with them*, reached the trading posts at Repulse Bay.

The following seven days were spent in recovering sight and in taming an appetite that broke loose every few hours for many days.

Major Burwash engaged a native who owned a whale boat to take him to Chesterfield Inlet. The voyage usually takes four or five days. The boat was stocked with provisions for eight days. On May 31st, the craft was run out on the shore ice. A team of twenty-seven dogs was hitched to it, and it was hauled thirty-five miles to the open water in Roes Welcome. The second day out, the wind veered and came from the south, and it brought with it ice floes: down in Hudson Bay the late spring sun had already begun its annual task of breaking up the heavy shore ice. The floes became more numerous. Soon there was no water to be seen—nothing but floes. And they closed in on the whale boat and moved it back toward Repulse Bay. The wind went down, and the tide, on the turn, swept floes and whale boat back toward Hudson Bay. Day after day the boat drifted—sometimes north, sometimes south—as wind and tide listed.

Then there were times when wind and tide got in sharp conflict, a strong wind saying one way, a powerful tide, the other. Then the ice floes, some obeying one, some obeying the other of these two giant forces, jammed together, crushed, crunched, one climbing a-top the other. And the whale boat—only an egg-shell amid titanic strife—was hauled onto a floe. (There were three men and a boy in the boat.) If other floes climbed and rammed, the boat was moved—here—there—wherever there was prospect of safety. It was hustle and tussle till the turn of the tide.

The eight-days' stock of provisions was eaten. The men went seal hunting on the floes. Luck was good. When the kerosene gave out, seal meat was eaten raw. There were rainy days and two snowstorms. Then the men rigged up a shelter with oars and a sail.

Twenty-two days after starting they sailed into Chesterfield Inlet.

In midsummer, Major Burwash sailed for St. John's, Newfoundland, aboard the S. S. *Bay Ruppert*, a Hudson's Bay Company's steamer. As it sailed eastward toward civilization, the wireless picked up the S. S. *Bay Chimo*, sailing eastward toward Cambridge Bay. And the wirelesses gossiped like neighbors over a back fence, across the desolation that so nearly had taken its toll of life.

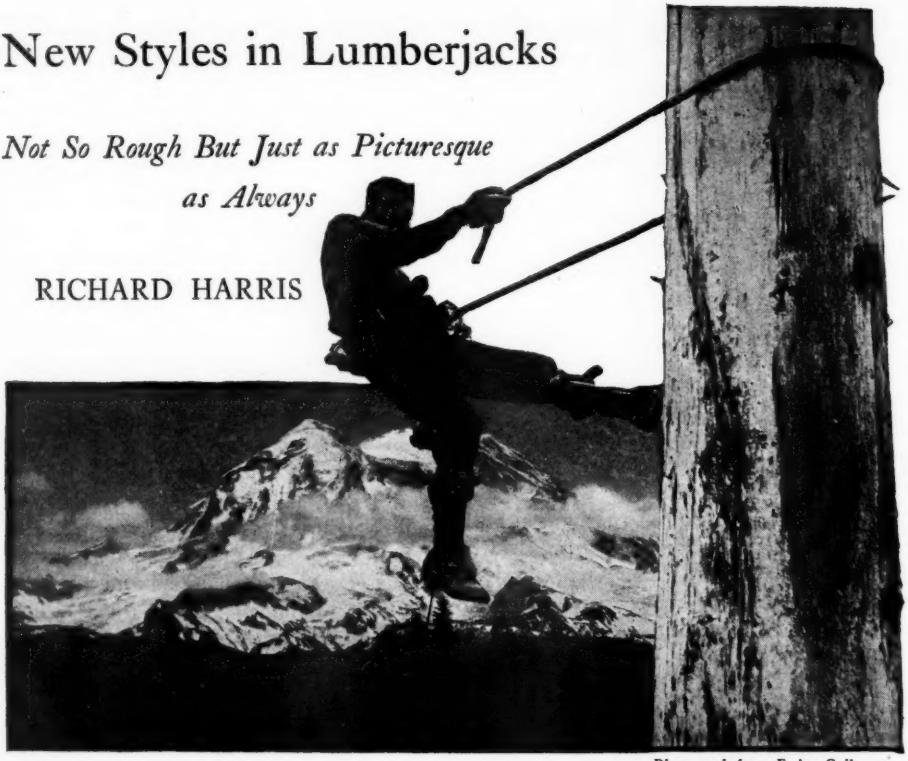
WOODEN SNOW GOGGLES

Even with this protection blindness on the trail is a common experience.

New Styles in Lumberjacks

Not So Rough But Just as Picturesque as Always

RICHARD HARRIS



Photograph from Ewing Galloway

THE LUMBERJACK, sturdy perennial of American life and history, is advancing upon the last and greatest stand of virgin timber in this country. He faces different conditions, and he is equipping himself to play a different part in the climax—the big act—of the great American lumber drama. Whether it will be the final act or not remains to be seen, but in any case it will be the last appearance of many of the old-time lumberjacks. They are either disappearing or adjusting themselves to the requirements of modern lumbering. Their work will be carried on by other lumberjacks, better known in the Pacific Northwest as loggers. We hope the logger is here to stay. If his job is permanent, our supply of lumber and wood is permanent.

Successively, the lumberjack has played the preceding acts of the drama, the width of a continent separating the first from the present action on the Pacific coast. Probably his first "big-time" appearance was in the cold forests of the old Maine region, as far northeast as to-day's setting is northwest. Then he worked in the great lakes timber country, in the sunny South, and in the pine forests of the Atlantic and Gulf coasts. Meanwhile, the largest forests of them all were awaiting their turn, and now the action has switched to the western slopes of Washington and Oregon. The big fir timber of the "long-log country" has drawn lumberjacks from all other sections of the North American continent and from some foreign countries, so that the term "lumberjack" is a somewhat arbitrary one for different classes and kinds of men. It does not fit the case as neatly as in the past.

In the big woods to-day, "old-timer" implies more than years of service. It means one who worked not only in an earlier period, but also in a vastly different one—in fact, in an epoch now closed. "Old-timer" may have been from Maine or from Wisconsin, or he may have been a native of the Pacific Northwest. He was

"woodsy" and plain, hardy and unschooled, and, by the nature of his work, considerably migratory. He worked hard and lived simply, if roughly, and the bounds of his world were narrow. He knew little of the power logging of to-day, and less of the modern logger's broader range of interests and habits.

But any of the many lumberjacks, old or young, will compare strangely with those we have seen in fiction. It may be just as well to eliminate them now. Check over the following lively group and see if you recognize any of them. They are the principal characters suggested by a merry lumberman to work at a "story-book camp."

First, you meet the foreman, "big, black, and ornery-looking." He greets you with an oath in a growling bass voice, pulling a pound plug of tobacco from his pocket, and expectorating a round that hits the trunk of a sapling 10 yds. away squarely in the center. Then you see the bearded giants in red mackinaws—great, dashing morons who can neither read nor write but can sing chanteys sixty-three stanzas long in loving unison—or split each others' head with axes. Bad *hombres* as they may be, they are under the heel of a worse, the timber baron himself, one of the vilest men alive, who steals timber, kills for profit, and cheats workmen. He is on a trip to the camp for the purpose of making more trouble—anything from putting sand in the lumberjack's sugar to blowing up a competitor's camp.

The cook cannot be left out. He is a fit associate for the foreman and the baron, another "mean-looking devil" who serves maledictions with the beans, and at intervals bellows a profane invitation (in a French-Canadian accent) to "go to hal." The only decent man in the camp is the hero, a young and handsome character who "fights brute force with science" and thwarts the baron's sinister plots. Other things in the "story-book camp" would be noted, but these few should be enough to satisfy anv one who insisted upon seeing

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THE OLD STYLE IN LUMBERJACKS

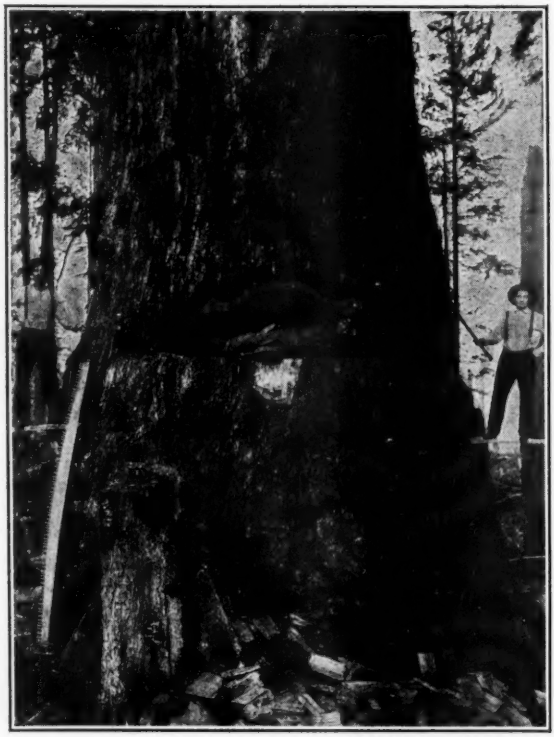
Old-timers, in this bunkhouse in 1894, had few conveniences and no comforts, and they were rough citizens.

lumber camps as he knows of them through red-blooded stories.

The real camp, in its own naturally heroic mold, makes a pale imitation of the fiction type, or relegates it to melodrama, where it belongs. A splendid setting has been provided for the lumberjack's final appearance, before he hands his axe and saw to the logger. It is a scenic region of white, lofty peaks, around which lies a country broken by many cañons and slopes covered with the green of ancient forests. America's greatest forests are upon these mountain sides.

Generally speaking, it is still a primeval forest region. A bulletin of the Forest Service states this as briefly as it could well be given: "Of the 28,000,000 acres of original forest, only about 4,000,000 acres have been logged. A little in addition has been slashed and burned off for agricultural use. The rest is in a state of nature." East is east and west is west in the Pacific Northwest. A great north-and-south mountain range—the Cascade—divides territories remarkably unlike, considering their proximity. On the east are found hot summers, cold winters, restricted rainfall, and smaller forests. On the west are a mild climate the year around, abundant rainfall, and dense, almost luxuriant forest growth. This rugged land between the Cascade Mountains and the sea is the big timber country.

Here the new-style lumberjack works in timber such as he has seen in no other place. Great fir trees, some 15 ft. in diameter, and forests that dwarf the others he knew, make woods work a real job. The timber is in rougher country—so rough, in fact, that special methods had to be devised to work in it. Where he might "snake out" logs in the East that were 2 or 3 ft. in diameter and probably 16 ft. long, here the logs range from 3 to 15 ft. through, and from 32 to 42 ft. long. And where he might have worked in the open pine forests of the South or, in the West, "east of the mountains," here the timber is so dense with underbrush and other forest growth as to approach a jungle-like condition.



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TOO MUCH FOR THE OLD-STYLE LUMBERJACK
Felling a Douglas fir 51 ft. in circumference. Such timber as this, growing in vast stands, necessitated massive equipment and novel methods.

The new style of lumberjack takes a great part in these new operations. Where before he skidded logs a few at a time up an oiled "skidroad," now he brings them in over aërial cables in quantities weighing many tons to the load or "turn"—he is both the brawny faller of timber and the daredevil steeple jack of the woods. But he does not take the most important part. Not he, individually; the operation as a whole is the thing, just as an army is the thing, not the private soldier. But his way is none the easier, for all that. The easily accessible lands were soon logged off, until now they work in very broken

country, in cañons and on mountain sides. The same factors that make reforestation practicable, produce conditions unfavorable to logging. The Pacific Northwest fir forests are very dense. They approach a jungle-like condition more closely than any other forests in this temperate zone, owing to the abundance of moisture, the mild climate, and the extremely rapid rate at which trees and underbrush grow.

New types of equipment and new methods came into use, after a great amount of time, money, energy, and profanity had been spent on the old. The usual means of timber transportation would not do here. The big snow sleds of the north and east were of no use. River driving never became generally dependable, because too many operations were located far away from streams. Skidroads were used for a time. Railroads were a special problem, and an expensive one. In other forests, tracks could be laid out, but here there was scarcely a location suitable for an outlet, while engineering and construction expense was enormous. And with the coming of the railway and the aërial tramway has passed the old-time bull puncher—one of America's most profane characters.

New types of logging and sawmill machinery had to be built for these new-style operations. Power logging on a great scale has followed. Expert timber "cruising"—the art of determining in advance what, and how much, timber is in a "stand," became necessary. Laying out the great logging "chances" is a real job for the engineer. Experienced railroad engineering was also called into play. One company has more than seventy-five miles of logging railways about its camps, with several steam shovels constantly busy on sites for new construction.

THE TOP IS ON ITS WAY DOWN

As the top crashes, the violent swaying of the great tree provides the "high-rigger" with his most dangerous thrill. He may be seen just below the finished cut.

The picturesque "sky-line" systems are built for the purpose of swinging the logs instead of dragging them over the ground, as in former times. These overhead systems are composed of special cables and equipment fastened to "head" and "tail" spar-trees, the head-tree being near the track and the tail-tree out in the woods. Although rougher than ever, logging has become specialized, because the units handled are much larger. It requires more exact ability to operate powerful engines and to design overhead systems and railroad operations. Men who are primarily engineers are coming into demand. Many of them have a knowledge of timber growing, as well.

The logger, new or old, trained or untrained, finds his place in this army. It is a conquest now, where before it was simply a sort of guerilla warfare at na-

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A SKIDROAD IN "BULL-TEAM" DAYS

The twelve oxen are dragging a log 14 ft. in diameter over a road made of logs bedded at intervals in the trail.

ture's borders. Fortunately for us, however, the conquest may never be completed. It is possible that the Pacific Northwest will always have forests. The real wealth is in the soil that can produce new forests fast enough to provide adequate supplies for future generations. No other region can reproduce in so short a time. It is not necessary to wait a century for a new stand. Douglas fir trees will grow to commercial size in from forty to fifty years. As an illustration, there is a tract of land in Clark County, Washington, on which the original forest was burned clean in 1881. This land was logged again forty-three years later, and the second growth on this operation showed a yield of 30,000 ft. per acre. It is being demonstrated that such second growth forests have yields that compare favorably with original stands that were found in other sections of the United States.

Where the old-style lumberjack "rode the drive" down the river in the thaw of a northeast springtime, here the new-style lumberjack risks life and limb in the dizzy job of topping great spar trees and rigging them for use in gigantic "high-lead" and skyline operations—all in the day's work. He works in bigger timber and rougher country, but when the day is done, he looks forward to a different sort of evening. Many of the camps in the Douglas fir region are modernized in a way unknown to the lumberjack in all of his history. Today he has well-ventilated sleeping quarters, electric lights, real beds, and shower baths. There are houses for the married men, with schools provided by some logging companies for the logger's children; and there are automobiles: "Garage for Rent" is a frequently noted sign in some camps. In the more isolated operations such innovations as moving pictures, radios, reading rooms, and periodical entertainments can be listed.

Yes, it is different; and the way the baked beans have changed is one of the most remarkable transformations of all. The average city man's diet is well cared

for if his meals are as varied as the logger's are. Meats, fresh and tender, green vegetables, fresh milk and cream, and good coffee have a regular place on the menu. Good home-made bread and biscuits are other items. The latter are "good for nothing but eating"—unlike those of old, with which one could kill a camp robber at perhaps 50 yds. (depending on the aim, not on the biscuit: the biscuit would always do its part). A meal like that takes the edge off a hard day, and listening to a camp radio dulls it further. Or the logger can take his flivver and go down to the skidroad into town, especially if it happens to be Saturday night.

The reason why the skidroad happens to be located in town is as follows (though on this point there are varying opinions). In the old days, most of the logging was done close to tidewater. The logs were skidded over a logway called a skidroad. This road was often the trail to the operation, and likewise the trail out of the woods. Probably the skidroad came to mean the lumberjack's whole trail. At any rate, the districts in Seattle, Portland, Tacoma, Aberdeen, and other lumber towns that were the lumberjack's own stamping grounds were dubbed skidroads and bear the name to this day. They were for pleasure, primarily, but for business, too, as the employment agencies were conveniently located along them.

The characteristic words and phrases used by few other groups of men are as oddly interesting as are those of the lumberjacks. With all their forcefulness, these terms are peculiarly direct and simple, like words used by grown-up boys. The "bull o' the woods" meant just what it implies. A "slaughter-house camp" was one where work was unusually dangerous. The "bull cook" was the man who took care of the oxen, which, in turn, were called "bulls" in the old days. A "high-ball outfit" is one that works faster than the average. "Spar trees" are topped trees that are tall and straight, like spars. "Putting neckties on logs" is another way of

Photograph from Ewing Galloway

THE SUCCESSOR OF THE "BULL-TEAM"

Donkey engines are being used here to drag the logs from the forest to the tracks and to load them on flat cars for the mills.

referring to the job of fastening cable loops on timber to be swung in to the load. A "chance" or "show" is the chance or show of getting logs from a given location and hence is the location itself. To "feel stakey" is to feel like spending wages accumulated. "Bullpuncher," "whistle punks," "wood bucks," "camp robbers," "Donkey punchers," "groundhog dumps,"—a long list could be given. All the words have the same quality. There is nothing technical about them; neither is there any special romantic twang, as is noted in those of the old cattle ranges, many of which were of Spanish derivation.

The woodsman's vocabulary was useful, hard, plain: each name implied the thing itself. The whole range of this terminology was raw and untutored, with a suggestion of immaturity in it. The I. W. W., an immature conception in itself, thrived in the Pacific Northwest woods, even to the extent of forming a definite period in their history. The "wobblies" adopted for their own many of the words of the lumberjack, as well as many of the lumberjacks themselves.

No word of the past endures with more tenacity than skidroads. They were a large part of the lumberjack's world. They were social clearing houses for him and his kind, or places for "shows" and wild revelry. From there lumberjacks flocked through the swinging doors of ornate saloons into the tense hum of magnificent gambling houses, or to dance halls where painted ladies waited. Everywhere on his skidroad the lumberjack was in his own element. He met his friends from everywhere, their faces brightened with pleasure instead of grimy and drawn and weary with toil.

During the Klondike rush, the skidroad boomed. The corner of Washington and Occidental avenues in Seattle was the hub of one of the most picturesque skidroads in the entire northwest. Probably the most famous of skidroad saloons, "Our House," still stands on this corner. It occupies a peculiar structure of theater-like proportions and appearance, something like one or two still standing where San Francisco's Barbary Coast once flourished.

A great bar of unique construction, served by eighteen pipe lines from a basement stocked with fine liquors, was on the first floor. The "finest gambling hall in the Northwest" was on the second. "Our House" was a "gentleman's house" and it "belonged" to the lumberjack. Besides being the largest and most brilliant, it was the most strictly regulated. No "rough stuff" was permitted. "Don't start anything—they'll finish it," was a current saying, and it had its meaning.

The lumberjack's occupation was not romantic. He lived in isolated camps, often working on muddy, cold locations, and his nights were spent in a little "knockdown" bunkhouse, where he slept in the foul atmosphere of tobacco smoke and "snoose"—in the company of "thirty-two men and sixty-four socks." It is no wonder he gloried in the splendor of shining mirrors and great bars with their gleaming fixtures —the light and comfort and warmth and glitter of such skidroad "palaces" as "Our House." To him it *was* a palace and he so nicknamed it. Of course, this term did not include the common, garden variety of saloon.

The aftermath of the gold rushes was a rough period for the lumberjack. An era of lawlessness set in on the Pacific Northwest skidroads. Crooks and harpies preyed upon the logger on his own grounds. Robberies, murders, and mysterious disappearances were common. "You could get held up most anywhere," is one old-timer's succinct description of conditions at the time. Through all this, a few places like "Our House" kept the skidroads from utter depravity, until law and order could expel the virulent criminal elements.

They still have their skidroads in the Pacific Northwest, and they may play an important part in the future.

"Our House" has kept up the traditions of the largest of the skidroads, but it is the only thing about it that might suggest a former splendor. Even "Our House" is a gilded shell of its former self, where the worker gets near-beer or milk or ice cream over its historic bar, or plays "rummy" in a back room, instead of faro or roulette in a spacious hall. The second floor is dark

and unoccupied. You wonder where all the lumberjacks are. A few may be seen in the milling crowd of working men, but the skidroad as such has lost its place.

This change has not been due entirely, or even for the most part, to prohibition. It has been the change in the lumberjack's entire field of work. A revolution of machinery struck the woods, as was noted earlier in this article. Power logging has brought better working conditions and broader interests to the logger, and the automobile has given him easier transportation to and from camp. He is no longer confined to his own class, isolated by force of circumstances. He is a part of the life of town or city, according to his own individual level.

These changes do not mean a soft life for the lumberjack. It is hard enough at best, and the improvements were very much needed. The work itself is more dangerous than ever, but its nomadic nature may be changed. His may be a permanent service to render. After a history of rolling up and moving on, he may have found a settled abode at last in a region that is peculiarly and ideally a lumberjack's home—a land of wild and varied contrasts, bounded by mountain and sea, backed by the forests that need his skill, dotted by landmarks and colored by traditions that are meaningful to him.

Powerful influences have been working steadily to this end. One of the most interesting of these is an institution appropriate to the Pacific Northwest. The history of the Loyal Legion of Loggers and Lumbermen cannot even be outlined here, nor its influence upon the lumberjack adequately measured. It is not only new in conception, but it is responsible for a great many of the remarkable changes that have taken place in the lumberjack's environment during the past decade. It is a novel and important accomplishment in industrial democracy, with a membership composed of both employers and employees. It signifies confidence and coöperation and points the way to a practical application of both.

In any view of the modern lumberjack in the Pacific Northwest, the influence of the well-known "Four L" could not be overlooked. It furnishes an important avenue of contact, generally lacking in great industries. This contact is greatly broadened by its publications, issued both in newspaper and magazine form. Under able and understanding editorial leadership, they provide a forum for subjects important and interesting to the lumberjack, and do not a little to promote the good will that is the basis of genuine coöperation.

In the final analysis, whether the lumberjack is here to stay or not depends upon the permanence of his timber. Right now, the big woods are still very much the Big Woods, and during the next generation the lumberjack's welfare is of more direct importance to us than ever before. The "long-log country," the Douglas fir region,

"HIGH-RIGGERS" HAVE TOPPED THIS TREE
On this head spar-tree will be placed the equipment for swinging the logs through the air.

will in the comparatively near future have to furnish most of our lumber for all-round purposes.

This the huge fir forests are well able to do. The lumberjack worked himself out of a job in Maine, in the Lake states, and he is doing it in the South, but no such forests as the Douglas fir forests of the Northwest grew in any of those places. Here he will not cut himself out of a job for a generation or two, at the least, and most probably not at all.

Remarkably favorable conditions for perpetuating his fir forests are characteristic of this country. While he curses the size of the timber and the density of the forest in which he works, one rainy day after another, he may bless these things in the future, for they are the very factors that will mean the permanence of his job. Dense, rapid growth and a mild, moist climate, together with a huge, fast-growing tree that is ideal for reforestation, may avert anything like a timber famine.

But the fact remains that he is now cutting the timber faster than it is replacing itself. At the present ratio of cutting to reproduction, the forests would eventually disappear. True conservation does not mean, however, to stop him from cutting timber, but to replace what he cuts. Douglas fir trees will grow to commercial size in the comparatively short tree-growing time of from forty to fifty years, instead of the century usually stated as the basis of reforestation in other types of forests.

The present ratio of cutting to reproduction can be changed and, from all indications, it will be. The best sign is the joint, active interest of the lumber industry and the government in a solution of the problem. They are taking more definite steps than ever to provide a permanent occupation for the lumberjack—because they know that, with natural conditions in the Pacific Northwest favoring them, it can be done.

A "PALACE" OF EARLY SKIDROAD DAYS

"Our House," in Seattle, as it appeared twenty years ago. The old-style lumberjack made these "palaces" a headquarters, sometimes even banking his money there. But now "Our House" is a soft-drink place.

With the British Air Patrol in Irak

The Rôle of the Airplane in Ruling Mesopotamia

A BRITISH AVIATOR

DESERT MOUNDS NEAR UR INDICATE THE PRESENCE OF ANOTHER BURIED CITY

The tale of the Royal Northwest Mounted Police in Canada is celebrated in history and fiction—and to that tale may now be added the achievements of the Royal Air Force in keeping peace in isolated regions under the British flag. A British aviator here tells of his experience as a "flying cop" in Mesopotamia.

YES, I SHOULD find plenty of excitement in Mespot—the abbreviated name for Mesopotamia, or Irak as it is now termed in official circles. Every pilot in my particular detachment of the Royal Air Force assured me that I should not miss the hectic life of India, where I had seen some rather arduous flying service in the hill country. They had heard about our troubles with the natives, how a forced landing in the forest or even a few miles away from the station invariably brings a horrible fate to the unlucky aviator, every conceivable form of torture and mutilation being meted out by the savages before their captive is permitted to die.

Here in the desert, they said, it was very much the same, a stiff game no matter what happened, with the weather cold in winter and deadly hot in summer, the sand storms, and the hostile Arabs. Almost anything could happen to a pilot brought to earth out there in "the blue." There had been one, a comrade. His engine went dead on him far out on a patrol flight. He had to land and, as it happened, close to a Bedouin encampment. He and his mechanic climbed out of their machine and greeted the sheikh who came up followed by the entire tribe. At first they appeared friendly enough.

By means of signs and endless words the headman asked if there were other British planes in the neighborhood. Receiving a negative reply he turned to his slaves and signaled. They seized the two castaways and bound them hand and foot. They were then thrown back into the cockpits of their plane. It was set ablaze. The

natives stood in a circle about the fire to observe any possible signs of weakening on the part of their victims as the aviators quickly roasted to death.

A friendly Arab who had been visiting that criminal tribe came to the squadron with full details. He was richly rewarded and every available plane sent out in pursuit. But the nomads had faded into the desert. Had they been caught they would have been bombed to extinction and the chance survivors finished off with machine gun bullets sprayed across the face of the earth as only a diving airplane can spray them. The squadron located the charred wreckage of the plane and, landing, gave their comrades a decent burial.

The day after my arrival at our station, which was located some eighteen miles out of Basra, a port town, I received a little booklet, printed in three languages, Turkish, Arabic, and Kurdish. I was told that it was a blood-chit, a letter to be given to the sheikh of any tribe if I found it hostile, in the event of my having a forced landing. It was only to be given up as a last measure. It stated that if the sheikh returned me safely to headquarters he would be rewarded with thousands of rupees. If, on the other hand, he injured or killed me, he would be bombed from the air and his entire village destroyed.

The British officers invariably throw these chits away when they receive them, because they have learned that it is bad practice to weaken or show signs of fear before the natives. Every officer is in duty bound to display utter contempt for his captors in whatever dangerous situation he may find himself, because it is only by that method that the prestige of the British can be maintained in these half-savage parts of the empire. One officer showing lack of nerve would bring down the standard of the entire race so far as the subject peoples are concerned. Americans still living can remember when the same policy prevailed in dealing with the Indian of the Plains.

It was the work of Colonel Lawrence and his British comrades during the last crusade that created respect for all things British throughout Arabia. Lawrence is still spoken of to-day as the great blond prince who never showed fear or betrayed the slightest sign of timidity; and the manner in which the Europeans worked with the Arabs after centuries of hate and mistrust won for Britain her present position in the Near East. The majority of the tribes are friendly, or seemingly so. If they have a grievance, owing to what they may consider excessive taxation or hard discipline in matters pertaining to sanitation and the like, they are careful to conceal it or at least to discuss the matter peacefully. But now and then one finds treachery and the eternal dislike that the Mohammedans possess for all things Christian.

Sir Alan Cobham, on his memorable flight from London to Australia and return, encountered a sand storm over our part of the desert in southern Mesopotamia and flew low and fairly close to the surface to avoid being thrown off his course. Suddenly, he saw the mechanic slump forward in his seat, his limp, unconscious figure indicating that he had been badly injured. Cobham had to continue flying until he could glide down into our field at Basra. The mechanic was fatally hurt and did not live long. None of us, Cobham included, had the slightest idea as to what had caused a wound that the doctors found in the lower part of his body. At first we thought that the engine had burst an oil pipe and that one of the metal pieces had been thrown back into the cockpit and imbedded itself in the mechanic's body. Finally, however, the doctors found the cause. It was a bullet.

At daylight next morning we set out to search the desert in the district where the incident occurred. We saw nothing that might help us trace the murderer, but later the police got on his trail through the stories that had passed from one Arab camp to another. He was caught and put on trial. It seems that he saw a chance of shooting at something that presented a fine target, and the fact that it was a plane flown by an alien made it doubly interesting. So he had peppered Cobham's machine while Cobham was flying along, serene and unsuspecting. We never

went out without half-expecting something like that to happen.

The Royal Air Force has been in Mesopotamia, Palestine, and Egypt since 1915, when British airplanes were used to drive the Turks out of Arabia. Both Field Marshal Allenby and Colonel Lawrence have repeatedly given their air forces credit for overcoming the Turkish-German resistance, which was considerably strengthened by the presence of the enemy's own planes. For years after the war Mesopotamia was a very unhealthful country for our pilots. They had no adequate barracks. The machines were not so good, and forced landings, common enough to pass without comment in the officers' mess, made life miserable for all hands. Insect pests were a real source of danger, aside from preventing any attempt at comfortable living. Malaria and dysentery were common diseases; in fact, they are to-day, though the government has made every effort to create the best possible living quarters. There are no brick barracks, swimming pools, or screened porches; nor are there any railway communications between important towns.

Meanwhile, the work of the Royal Air Force has been carried on without regard to conditions. When the Emir Feisal was driven out of Damascus, and the French took over Syria, the British Government made him king of Irak, and he was established in the capital at Baghdad. The British mandate for that country has made it imperative to station large bodies of troops at strategic points throughout the country, and the air force squadrons are the most important element, as they are in other parts of the empire.

There are two big reasons for maintaining the air force at these lonely outposts. The planes patrol the desert for hundreds of miles. If it were not for these patrols the rival tribes would be constantly at war with one another. But under present conditions most of the tribes remain at peace because they know that they will be outlawed and eventually punished if they engage in raids. But raiding has been their

THE PICTURESQUE TOMB OF EZRA THE PROPHET

The native superstition that bad luck follows those who snub the memory of Ezra spread to the Air Force. As the natives salute when they pass so the pilots dip their machines and never fly directly over the holy place.

chief occupation for thousands of years. It is their chief profession and trade, their main source of income.

A raid is planned for weeks in advance. Only a few dates are carried for food and only one bottle of water to each member of the raiding party, so that he is not handicapped by too much weight. Fast camels carry the raiders, the success of the venture depending utterly on speed in getting away before the victims have a chance to inform the British authorities. So it becomes a game, and very often a few planes sent out in time will interrupt a bandit party before it has finished fighting. The planes go out on patrol several times a week, so the chance of a successful raid is not very good.

Then, too, there is the very important matter of collecting taxes. The native officials are nominally the custodians as well as the recipients of the taxes, and outwardly at least the British Government derives no revenue from this source. But in practice it is different. When Britain guarantees the budget for a country or province it must advance large sums, or at least see to it that the taxes collected compensate for the full amount; so it falls upon the air force squadrons to enforce the collection of periodic amounts from the headman of each tribe and village. Very often the headman or sheikh becomes obstinate and declines to appear with his tax money on the stipulated date. He is given three warnings. Then he is notified that if he doesn't pay up by the next day his big house will be bombed to ruins. Sometimes we had to fly over a small village and bomb the big house three or four times in the course of a year.

That may sound extremely brutal, but it is actually a good way of penalizing these people—the only way, in fact. The big house is made of such material that it can be easily repaired. All the occupants, of course, know, and are given warning, when to leave the premises and get out of danger. The main result is that nearly all members of the tribe will have to set to work and repair the house, which is slightly more arduous than acquiring the means to pay the tax. They are a lazy race.

Mesopotamia was once a garden spot of the world. The natural resources that made it so exist to-day; and the greatest wealth lies in the Tigris and Euphrates rivers, which drain the country and make it fertile. If the people would work at farming they would be prosperous, but centuries of poverty, ignorance, and the dominion of aliens as ignorant as themselves have forced the natives backward. It is part of the policy of the British Government to make Mesopotamia a rich agricultural country, aside from making it yield its mineral wealth; and the only way that this can be accomplished is by training the natives to work. Thus far, they will work only when they are compelled to, either to provide food or to pay the hated tax. Of course, there is slight chance that the nomadic desert tribes will ever, at least in this generation, be brought under the economic yoke that civilization imposes. But while they remain nomads they are a menace to travelers and to their neighbors. That is why the air force must be maintained. The second reason is even more important.

Since the war, Great Britain has steadily developed her aviation along the lines of a definite program laid out before the war had ended. It is nothing less than linking together the far-flung units of the Empire by means of aërial highways. For nine years the Royal Air Force has been the medium by which Cairo, Jerusalem, and Baghdad—the three British headquarters in the Near East—have been kept in constant and quick communication with each other. All official mail has been flown by the military pilots. They have blazed these new trails across hundreds of miles of desert and, incidentally, have kept the surface routes open for the motor lorries and supplies passing to and from the railway lines.

Because of the clear air, the region makes an ideal training ground for pilots, and any number of veterans in the air force have become masters of the flying art in the periods spent at these outposts. They find all kinds of weather in Mesopotamia. The winter, which begins in November, brings a climate like that of the

American northwest, with bitter cold that sometimes lasts until the end of April. Then the air becomes hotter and hotter, until by July the thermometer rises to 120° in the shade. So the pilot is accustomed to flying in all kinds of weather. That makes him of value to the government in any kind of service.

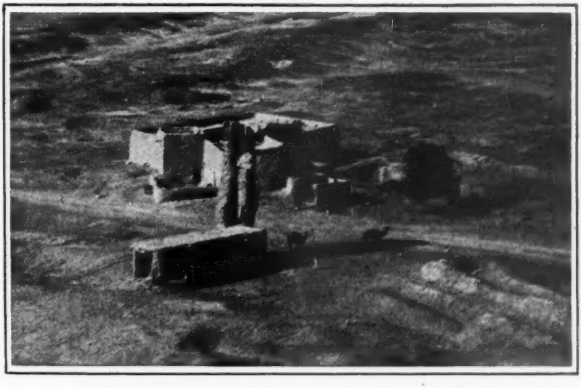
If war should come again, Great Britain would be able to transport supplies and troops by air all the way from England to Cairo and thence across Arabia and into India. Early in the year, when the new civil route was opened up between London and India, the way stations included Katara, Egypt; Gaza, Palestine; Baghdad and Basra, Mesopotamia; Bushire and Bunder Abbas, on the Persian Gulf; and Karachi, India—the eastern terminal. From Katara to Karachi is approximately 2,500 miles. The airplanes make it in two days and a half, as contrasted with eight or ten days by train and motor, when the terrestrial transport can get through. Of course, there is always the menace of sand storms. Sand blowing in masses as thick as snow is one of the greatest hardships to confront the pilot.

Coming back from a long patrol one day I noticed a dark streak across the horizon. I wondered what it could be, as it appeared to be coming my way at great speed. Still ignorant because I had experienced no heavy storms, I continued on until the air grew thick and I seemed to be flying through a fog. At my height of half a mile I no longer could see any of the landmarks, so I nosed down lower, expecting to find a railway that would guide me straight home.

Imagine my surprise to find that no matter how low I flew I could not see anything on the surface. By that time I knew that my plane was speeding me into the heart of a sand storm. Still lacking experience, I decided to climb over it, which was something no veteran desert pilot would attempt.

Pulling the nose of the machine up gently, I commenced climbing. The wind grew into a howling gale. My eyes became filled with sand that crept in despite my goggles. Breathing was difficult, and I felt like a runner at the end of a race—but my race was only beginning. The wind was now swinging the machine back and forth across the sky like a pendulum, so that, not being able to see any horizon, I lost all sense of direction. First one wing would be tilted down, then the other, and there was real danger of going into a spin. But I continued climbing until I saw that the altimeter registered two miles above the earth. Still I could see nothing, not even the sky. The sand and wind were even more vicious than before.

I felt myself in a cold sweat and decided that my only chance was to get back close to the surface. My only hope of doing this safely was to shut off the engine and glide down, for if I kept going at full speed, I might strike the surface head on. That journey down is recorded in my memory as the most frightening experience of my life. Now that the engine was stilled the wind seemed to gain in intensity. It howled and shrieked through the flying wires. The one thought uppermost was that I must not lose my head. In no time at



THE HOME OF "SINBAD THE SAILOR"

This interesting ruin eight miles out of Basra, in southern Mesopotamia, is firmly believed to have been the home of the legendary Sinbad.

all the altimeter registered only a hundred feet above the ground, and I looked out for visible evidence of it. But my eyes were watery with sand—hot sand that made them feel blistered; and it was some seconds before the welcome earth appeared. I pulled back on the control stick and waited for the wheels to touch. By luck the surface was good. By mere chance I made a good three-point landing. For perhaps fifteen minutes I sat there quietly, with the nose of the plane against the wind, until finally it died down and the storm was behind me. I knew what to do next time—land at once before such a storm should fall upon me in the air.

Another duty performed by the pilots of the Royal Air Force is aërial photography. Mesopotamia is rich in ancient landmarks, and we made many photographs of them from the air. We also contributed to the air map, a great mosaic of vertical photographs that, pasted together, form a pictorial map of the country. From Basra we flew to nearly all the towns mentioned in the Bible and to Qurnah, where the Tigris and the Euphrates are joined and where people like to believe that the Garden of Eden was located. They even have a small wall around an old apple tree, and—if you will believe it—this was the very tree from which the famous apple was picked.

We never flew over the forbidden places—scenes or tombs rated holy by the Mohammedans—but there was no objection to our flying close to them if we did not speed in and sever that invisible tie that binds them to their heaven. We made many discoveries, which were new at least to us. I saw the magnificent tomb of Ezra the Prophet when still many miles distant, for its turquoise-blue mosaic dome flashed and scintillated in the sunlight high above its surroundings, which are nothing but a few trees on the banks of the river.

The tomb is highly respected by the natives, and all of them salute it when they pass, believing that ill luck will follow him who snubs the memory of Ezra. The superstition has spread throughout Air Force circles, and no pilot fails to dip his plane in proper salute when flying past the place. I put the nose of my machine down as I passed it; then circled about and snapped a picture of it.

One day during the winter of 1925, while flying the mails from Basra to Baghdad, I noted on the left side of the Euphrates a great dull mound that appeared to be about 150 ft. high—something unusual in that region, which for miles in all directions was perfectly flat and smooth. Circling about I could see hundreds of Arab coolies working with spades and pickaxes. Little iron trucks on a miniature railway were being filled with débris and wheeled away to be emptied some three hundred yards distant. I went back there at my first opportunity some months later, for this was Ur of the Chaldees, where Professor G. Leonard Woolley is carrying out his great excavation plan for the British Museum and the Museum of the University of Pennsylvania.

On my return I found the place practically deserted. The heat made it impossible for even the Arabs to labor at such work. An old Arab guard was the only human being then resident in Ur. He and a number of dogs were there to ward off night raids of pilferers. I managed to convince him that my mission was innocent; and he showed me about the place. Next day I spent nearly an hour in the air taking photographs of a scene that had been at the height of its glory 4,500 years ago. Then I climbed to more than half a mile and proceeded to make a series of vertical photographs that would form a mosaic of all the excavations.

During these flights, whether on patrol, with the mails, or simply sightseeing, I had several forced landings; but only once did I happen to come down near a desert tribe. In that case I put on a bold front and strutted forth to meet the sheikh, smiling and apparently very much at ease. My hosts proved most hospitable. I was escorted to the tent of the sheikh and there, seated on his best rugs, received from the hands of his slaves dates and camel's milk. Later, feeling quite at home, I took a nap and awoke to find another machine of the squadron dropping down with a mechanic to repair my engine.

Tales by U-boat Commanders
Of Battles They Did Not Win

From a painting by Wilhelm Ritschel

Raiders of the Deep

How the Allies Made Life Uncomfortable For Them

LOWELL THOMAS

IN HAMBURG I sat in the office of a concern engaged in the development and manufacture of an improved type of Diesel engine. It was an exceedingly businesslike place, with files, blue prints, and clicking typewriters. Across from me was a short, thick-set man with iron gray hair, who had all the appearance of efficient energy. He was Korvetten Kapitän Gustav Siess, who had most decidedly done his bit in the war of the undersea. We talked of Hansen—Captain Claus Hansen—who was one of the first to make a name as a wholesale commerce destroyer and who went down to his death about a year after the outbreak of the war. First with the *U-16*, and then with the *U-41*, he ran his brief, brilliant course, sinking a large number of merchant ships.

Siess was with Hansen on one of the latter's wildest adventures. The two men were great friends. Siess had been the commander of a torpedo boat and had been transferred to the submarine service. Be-

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fore taking command of a U-boat an officer always had to go on a cruise with an experienced commander to learn some of the fine points. Hansen was the man to expound and illustrate the ways of the game to Siess. In a precise, matter-of-fact way, my host in the Diesel engine office told me the story. It was an example of the kind of thing that had a way of happening in the early days of the submarine war against merchant shipping.

The *U-41* ran on the surface all night. A dim, gray dawn broke on placid northern waters. In the misty light the shadowy form of a small steamer appeared. She was small, true enough, but what they did not know aboard the *U-41* was that she was the fishing steamer *Pearl*, which not long before had been converted into a patrol boat, armed to hunt submarines. In the half-light no sign of her guns or other suspicious mark could be seen. The U-boat mistook the sub-chaser for a common, harmless tub. The warning shot across her bows banged, and another shot banged in return. That was nothing to scare anybody. A U-boat need not dive precipitately out of a gun fight with a puny craft like that. No doubt she had some kind of foolish popgun aboard. The *U-41* drew ahead to shorten the range and have it out with shell fire. Both sides held their fire for a bit. The steamer became clearer in the morning light. Rather warlike she seemed, with her guns and bulwarks. Hansen turned to the stocky, stolid-faced Siess.

"Seems to be tougher meat than we expected."

"Too tough, you think?" asked Siess.

"Well, let's try her out with a few more shots," replied Hansen.

"Steering gear has jammed," the report came from below.

And the *U-41* was heading straight for the enemy ship. The men below struggled with the rudder. It would not budge. The submarine kept drifting on, unmanageable. With the rudder out of gear, it could not dive.

The *Pearl*, not six hundred yards away now, opened a blast of fire. Shells popped in the water all around. One struck the hull and exploded just at the water line. It looked like a "gone" submarine for a moment. Then there was a savage burst as a projectile hit the conning tower. Lieutenant Schmidt, the watch officer, who was standing on deck beside Siess, dropped to the steel plating, horribly wounded. Another shell struck the hull close to the water line. The U-boat's guns were replying shot for shot. Two shells burst on the *Pearl's* deck.

"Steering gear's in control again," the word came from below.

At that moment the *Pearl* turned to ram the U-boat.

"All hands below for diving," Hansen yelled.

The wounded watch officer was lowered through the hatch as quickly as possible, the other men tumbled in. The *U-41* plunged just as the *Pearl* came rushing over her. Water poured into the submarine the moment it submerged. The shell that had struck the conning tower had ripped a hole in the steel plates, and through this water spouted as from the nozzle of a fire hose. Pumps were banging and pounding—could they keep the boat from foundering right there? No—the water was slowly rising inch by inch. On the surface lay the *Pearl* waiting with guns and ramming prow.

Eloquently and with little figure of speech, the *U-41* was between the devil and the deep blue sea! The submarine had sought safety 75 or 80 ft. below the surface. The deeper the U-boat went, the greater would be the pressure of the water, and the faster it would geyser through the hole in the conning tower. The *U-41* climbed a little closer to the perilous surface. The water swishing at the bottom of the hold continued to rise, but at a slower rate. At 50 ft. the furiously laboring pumps held the water level. At 50 ft., it was clear, was the maximum depth for the boat, beyond which she dared not go. She was safe for the moment.

The boat, running along slowly under water to get away from the vicinity of the *Pearl*, nosed upward. Water still rushed through the hole in the conning tower, but the pumps were now more than its match. The hold was pumped dry. At periscope

depth the "asparagus" poked its nose above the surface. If the crew could get the boat above water they would have a chance to try to plug up the hole in the conning tower. The short, muscular Siess had his jaw set anxiously as he studied the commander's face. Hansen was peering into the telescope-like eye, the nerve center, the line of communication with daylight.

"She's still there," Hansen exclaimed, and down came the periscope.

It seemed a queer turn of chance. The *Pearl* had happened to take the same course as the U-boat. The *U-41* went to its "floor" of 50 ft., changed course, and for half an hour scurried along under water as fast as it could, making certain to get away from its enemy on the surface. The water spurted into the conning tower with a monotonous splashing, and the pumps clanked and rumbled.

"Out periscope!" And again the wide-shouldered Siess screwed up his frowning brow, as he watched the profile at the eyepiece. Hansen's mouth twisted incredulously and he spoke in a tone of wonder.

"She's only 100 ft. away."

Then his tone rose with abrupt alarm.

"Dive—quick—quick—she's ramming us!"

There were long, tense moments as, with unbelievable slowness, the depth gauge showed that the boat had begun to sink. It is strange how slow things can seem when life and death hang balanced. Then there was a terrible, shattering crash. To the tense men in the conning tower it seemed as if a shell had hit the boat. The frightening impression of the shells that had burst around them was still vivid in their consciousness. But no shell could have struck the submerged *U-41*. The *Pearl* had surely rammed it. The U-boat rocked from side to side.

"We're done for," muttered Siess, and waited for the sound of water flooding the hull.

The only sound of water was that of the fountain spouting in through the hole in the conning tower. Had the ram prow of the *Pearl* swept along a split second earlier it would have smashed the conning tower. It had merely grazed it—and torn away the periscope.

It was clear that in some way or other the patrol boat was trailing the submarine. At her depth of 50 ft. she surely could not be seen. Something on the surface was marking the path of the big fish below. U-boats occasionally found themselves in that predicament—followed around by a craft on the surface—and surely the imagination can devise nothing better for stringing out a prolonged accumulation of terror. In later days of the war the suspense was likely to be ended quickly with a depth bomb. The enemy on the surface would not merely track its prey, waiting for it to rise, but would search it out with charges of high explosive set to detonate at various depths.

COMMANDER KURT HARTWIG
He sank the British battleship *Cornwallis*.

As it was, the plight of the *U-41* was sufficiently disastrous. With water pouring through the hole in her conning tower, she could only grope along blindly. At nightfall she might expect the *Pearl* to lose the trail in the darkness. Siess looked at his watch. It was 6 A. M. The days were long. Night would not drop her merciful curtain till 8 P. M., fourteen hours later. The *U-41* could not remain under water that long. Her batteries were already partly exhausted, and, with the amount of power that had to be used to keep the

pumps going, they could not possibly last till nightfall.

To save power, the boat was run at a snail's pace—just fast enough to keep her under control. With her periscope torn away she was sightless. She had a small emergency periscope, but to use that she would have had to come so near to the surface that it would have been fatal with an enemy near by. It was evident that the *Pearl* was still on the trail. The noise of her propellers could be heard. Previously, the hunted men had not noticed the whirring sound—the noise of their own pumps made it indistinct and, not expecting it, they had not listened for it. The telltale hum from above accompanied them like Nemesis. Sometimes it was overhead, sometimes to the right or left, but always quite near. The *Pearl* could have dropped her anchor, payed out 50 ft. of chain, and hooked the U-boat as if it were a big fish.

The morning passed, and noon. It became apparent that the game could not go on much longer. The air was unbearably foul. The wounded watch officer gasped for breath as he tossed in agony in his bunk. The batteries were growing weaker and weaker. Soon they would not have enough power to keep down the water that poured in through the hole in the conning tower. Then the *U-41* would have to come to the surface and face the *Pearl*. The sound of propellers above kept following like a pursuing demon.

After ten hours, at somewhat past two o'clock in the afternoon, the whirring noise seemed to grow faint. The men in the U-boat thought their ears must be failing them. No, the sound grew louder—and then dimmer again. And now it could be heard no longer.

"Can it be that she has lost us?" Hansen exclaimed, scarcely daring to hope.

Siess passed his hand over his short-cropped head and scowled in pessimistic doubt. Not for two hours more of torment did they dare to come up for a look through the emergency periscope, and then the *Pearl* had vanished. The sea was deserted. The U-boat came out into the air—pure, sea-blown air.

The secret of the mysterious pursuit became clear. One of the shells had perforated the steel hull of the *U-41* at the point on the water line where the oil tanks were situated, and the result was an oozing leak of oil. This, floating on the surface, was the trail the *Pearl* had followed. She had lost it in the broad daylight of afternoon because the sea had grown rough and in the churning of wind and whitecaps the track of oil had become obliterated.

After the abandonment of the first unrestricted U-boat campaign there followed a quiet time in the waters around the British Isles, but there was still much activity in the Mediterranean. The center of the U-boat war was transferred temporarily to the southern sea, where the precautions against under-surface attack were not so well perfected. There, during the summer and autumn of 1916, the sinking of ships went on busily and in accordance with the "restricted" system, whereby ships were first warned, so that crews could take to the lifeboats. Then the vessels were sunk. One of the prime incidents of that period occurred in January, 1917, when Kurt Hartwig got the *Cornwallis*.

It is a brilliant morning off the cliffs of Malta. The sea stretches away with that deep, glowing blue that makes the Mediterranean splendid. A German U-boat idles along. The lookout on deck shouts a warning:

"Smoke on the horizon!"

There is a dull, misty smudge on the sky line. The sea closes rippling over steel deck and conning tower. The distant shadowy blot on the clear blue of sky magnifies and deepens. Funnels come into view and a formidable bulk. It's a big battleship. Its guns point in a menacing series, and it flies the war ensign of Great Britain. The huge ship zigzags from side to side, and around it circles a swift destroyer, searching the expanse of water for the sign of a periscope.

There is a periscope yonder, but it is far distant now, and it has disappeared before battleship and destroyer have come near enough to see. Below the surface in the

conning tower the big blond Hartwig slaps his broad chest with elation. He is the same Commander Kurt Hartwig who had been put on the "murderer's list" by the Allies after the sinking of the *Porto di Rodi*.

"She's coming as if she were catapulted right at us," he cries, "She'll run us down if we're not careful. We don't have to move 10 ft. for a shot."

The battleship, indeed, seems bent on its doom. Its zigzagging course is carrying it hard upon the submarine. Hartwig shows his periscope for fleeting instants. She is the great British battleship *Cornwallis*. It is too easy. He has no difficulty in getting into a position where the leviathan will thunder along across his stern not 250 ft. away—a dead shot for any skillful marksman with torpedoes.

Two stern torpedoes leave the tubes. A bubbling on the surface and the white track of the missiles is seen. Two heavy explosions follow in rapid succession. The battleship is hit in her engine room. The U-boat is plunging to a hundred feet. Hartwig expects the destroyer to come rushing. It does. A crash to one side, and the submarine shakes ominously. A ringing explosion overheard. Another somewhat farther away. The music of the depth charges is not pleasant. The U-boat is scooting away under water as fast as it can, and loses the sound of exploding bombs.

Thirty minutes drag on, slowly, blindly, under the sea. Then a periscope pops up on the surface. The battleship is lying deep in the water, but not listing. The destroyer is taking survivors aboard. The periscope is spied. Instantly the destroyer is around and charging. She hopes to ram the submerged enemy. She strikes nothing. The U-boat has dived and is clear. As the destroyer passes over the place where the periscope was seen she drops a sprinkling of depth charges off her stern. Again the men in the iron shell a hundred feet below the surface of the sea listen to the menacing rhythm of the bombs. They are lucky—explosions on all sides but none near enough to damage.

"We'll have to hit her again." Hartwig turns to his watch officer. "She won't sink, and they'll take her in tow."

They would, doubtless. Malta is only twenty miles away and the stricken battleship seems in good enough condition to be towed that far.

"If that destroyer would only let us alone," murmurs the watch officer. But of course the destroyer will not. That would be too much magnanimity.

The battleship is stationary now, a still target, and a long shot is possible. The periscope shows momentarily in the distance, and is not seen. Once or twice more it is thrust above the blue water. And now bubbles and a torpedo track appear at a distance of almost three quarters of a mile from the *Cornwallis*. The track is seen long before it is near the helpless giant. There is nothing to do. The ship cannot move an inch, much less swing around to avoid the missile. The only thing that can possibly be done is for the destroyer to chase out there where the torpedo track was first seen. It goes, charging like an angry bull.

COMMANDER MORAHT
He tried to fight his way out of an enemy convoy.

The sea-mammoth, impotent, unmoving, waits for the deadly blow. The torpedo strikes the engine room again with a sickening explosion. The stricken monster shakes as with a dying convulsion and lists to one side. A mile away and a hundred feet below the placid surface of the Mediterranean men listen to popping detonations. The sounds are weak. The depth bombs are exploding far away. The U-boat was able to get a safe start before the destroyer arrived to drop its death

BRINGING THE CAPTURED VESSEL'S PAPERS
The sequel to examining the papers is shown below.

messages. Half an hour later the periscope peeps cautiously. The battleship is lying over on one side. Its crew is aboard the destroyer and in lifeboats lying alongside. In a submerged conning tower a brief colloquy is spoken.

"Shall we get the destroyer?" asks the watch officer.

"No," replies Hartwig, "a battleship is enough for one day."

"*Ya, Ya,*" the watch officer assents gladly.

It would be too inhuman, even for the submarine warfare, to torpedo the destroyer crammed with survivors of the battleship—although that swift, buzzing craft had been a pestilential hornet. The radio operator reports a message he has picked up:

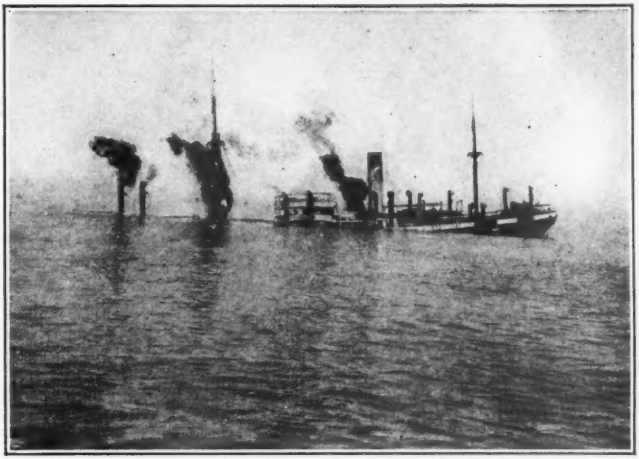
"H. M. S. *Cornwallis* sunk by submarine."

Afternoon tea at the Kaiserhof is one of the bright moments of the daily social whirl in post-war Berlin. There you are likely to see half the notables of Berlin, particularly the diplomats. It is a regular habit with the officials of the Wilhelmstrasse foreign office to adjourn to tea at the Kaiserhof. I remember, the day I sat there in the lounge, glancing over occasionally at Stresemann, the Foreign Minister, with his round head as slick as a billiard ball. My companion for tea this day was in no wise a figure of diplomacy (although of a diplomatic family), but decidedly a personage of war—in fact, one of the most formidable of the raiders of the deep—and he was telling me tales of his adventures under the sea.

Korvetten Kapitän Robert Wilhelm Moraht was born in 1884, on the island of Alsen, now a part of Denmark. He spent his boyhood in Hamburg and entered the Imperial Navy in 1901. His career with the U-boats was comparatively brief. He entered the submarine service in 1916, and was captured by the British in 1918, but those two years were packed with adventure and hair-raising experience and a spectacular panorama of exploding torpedoes and sinking ships. Commander Moraht destroyed forty-four merchant ships, of a total of 150,000 tons. He accounted for two men-of-war, one the largest fighting ship ever sunk by submarine torpedo attack. He won the highest

A HIT AT THE WATER LINE

decorations the Kaiser could give, including the *pour le Mérite.* After the Armistice he retired from the German Navy and, planning to enter industrial life, went about it in a characteristic German way. He undertook university studies in the science of economy, took a degree of Doctor of Economics, and has written authoritative treatises. He is now an expert connected with various German industrial organizations.



THE STEAMER "FERT"—AN ITALIAN CASUALTY
The result of a gunfire duel with the *U-64* on June 6, 1917.

I found him an alert, cheery, good-looking chap of about forty who told his story in a vivid manner spiced with drollery—not with boisterous laughter but with a peculiarly humorous whimsical smile. He speaks English like a cultured Englishman, save for some words of American slang. This particular Captain Nemo and learned Doctor of Economics is particularly interested in talking "United States," and to add to his mastery of scholarly English he makes a serious effort to master its latest jazz forms. He really has a finer command of our language than has the average American. But our picturesque slang is his present hobby, and it fits him to a "T." When I talked with him he constantly used American slang. Sometimes he got it wrong, but more often right—which gave his narration a color of its own.

THE LAST ROLL OF THE "FERT"

And so at tea in the Kaiserhof (yes, there was tea, not cocktails) the days when the terror of the submarine stalked the sea were conjured back in a dramatic pageant:

"My first cruise and my last one were what you Americans would call the limit. *Ach, Gott,* on the first we were nearly sunk, and on the last there was no 'nearly' about it—the *U-64,* limping, lurching, riddled with shell fire, received her death stroke at last and went plunging to the bottom of the sea, to the doom of that last port to which she had sent many other craft.

"The first cruise had a tremendous mood—epic, great stuff. It was the day before the Battle of Jutland. Next day the two greatest fleets of all history met in a gigantic, fiery collision, a mighty conflict of massed steel and high explosive. Huge ships went down with thundering explosions. I had recently joined up in the submarines, and had just finished my studies and training to fit me for the post of a U-boat commander. The *U-64* had recently been put into service. She was the

THEY SANK A FRENCH BATTLESHIP
Part of the crew of the *U-64*. Commander Moraht stands behind the gun.

latest thing in submarines. Her length from nose to tail was more than 200 ft. Her gross weight when plying as a surface vessel was 800 tons, but when she took to her proper element beneath the waves her tonnage shot up to 920 tons. To submerge we simply opened our valves and let the sea flow into the tanks. And when the *U-64* metamorphosed into a fish she drank 120 tons of water in one long gulp. Her speed on top of the sea was fourteen knots and beneath the waves she did six. To put on her magic cloak of invisibility and dive out of sight took exactly sixty seconds. But there are times when sixty seconds are just fifty-nine too many. We were equipped with two Deisel engines for running on the surface and with electric motors for running under the sea. So powerful were her batteries that we could carry on for twenty-four hours in the depths without coming up to recharge.

"Our training days over, we put to sea on our great adventure one balmy spring evening, with our guns, periscope, and wireless masts festooned with birch bows and huge clusters of lilacs in honor of our 'coming-out party.' It may seem a bit incongruous to hear of a grim U-boat starting on a raid garlanded with lilacs. But that's the way it happened. However, our adventures soon brought thoughts of other things than lilacs.

"We were greenhorns anxious to strut our stuff, and it happened that our first assignment was to continue on cruise on the day after the Battle of Jutland. We were to scout for British naval vessels that might still be on the prowl after the fight and to see if we could pot them with a torpedo or two. So the *U-64* changed its course and steered for the battlefield, that stretch of sea off the Danish coast where, the day before, hell had broken loose.

"Avengers we were not. The sea was deserted. We sailed far and wide, but nary a British warship did we see. Yes, we were greenhorns—tender as they come. We exhausted ourselves, as beginners are likely to do on a first cruise, and the solemnity of the occasion made us work all the harder. By nightfall, after our day of industrious scouting about, we were all in, *ya*, I'll say we were. We sank to the bottom of the sea for the night, and got in a session of heavy sleeping.

"'Nothing accomplished,' I said to myself disconsolately as I fell off to sleep. 'No excitement or anything.' But before that cruise was ended I was destined to get the thrill of my life. I didn't know anybody could experience such a pang of fear and despair. My first submarine thrill—well, it was an appropriate way to begin a career as a U-boat commander. Yes, thrill is the word that gives the keynote of life in the war under the sea. We were on our way back to our base at Emden the next day, gliding along on the surface near the coast. At noon I went above to take my turn at watch on deck. The mate, whom I was relieving, told me that he had noticed a 'stick' thrust out of the water on our starboard. Greenhorns? *Ach du lieber*, yes. With a little experience no one but a lunatic would mistake a periscope for a stick. I might have made the mistake myself, only I was well enough acquainted with those waters to know that there were

no sticks, such as might be used to mark a channel, to be expected in those parts. Sure enough, it was a periscope. And hot dog!—is that what you say?—there came the torpedo. The enemy submersible had cut loose at us at short range, and here came a torpedo straight for the bull's eye.

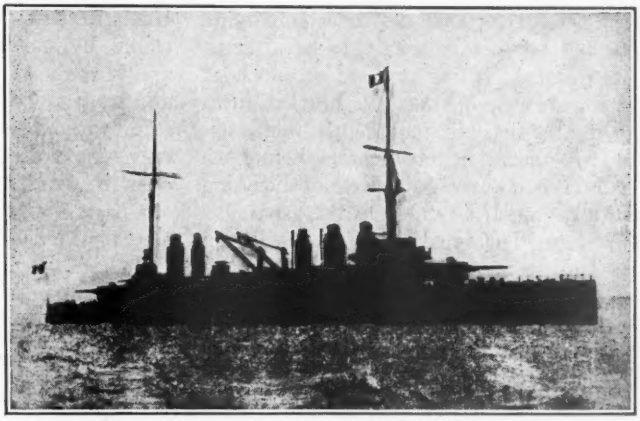
"'Hard a-port, both engines full speed astern!' I yelled.

"The *U-64*, quickly obeying her controls, swung rapidly around. I was just getting the burden off my mind when suddenly the whole world went into a daze. A deafening explosion crashed out. I nearly passed right out from sheer funk. It seemed like the end of everything, so far as we were concerned. Then, to my vast relief, nothing further happened. The boat just rocked and swayed and bucked a bit. I was tickled pink to find a solid deck still under my feet. A cloud of smoke drifted over us. What happened was this: The water was quite shallow in spots. The torpedo had indeed missed us. It had run on past us and hit a shoal and exploded not a hundred feet farther on. It was a badly shaken crew aboard that U-boat as the craft got away from there, zigzagging as fast as it could. Hot stuff? *Ya!* I'll say. You bet it left us with something to think about—just as much so as if we had bagged a British super-dreadnaught that day after the Battle of Jutland.

"Soon afterward I took the *U-64* around through the Straits—past old 'Gib' and into the balmy Mediterranean. During the months that followed, until our iron dolphin met its tragic end, we campaigned in that beautiful sea. Save for the duties of war, it was idyllic cruising—beautiful days, blue water, and lovely coasts. It might have been the most perfect pleasure cruise—in fact, it would have been except for the food and, of course, the under-surface voyaging. But food, ah! that is always the great problem in a submarine. On a long voyage the interminable diet of canned stuff, with peas and bacon as the *pièce de résistance*, becomes unbearable. Since then I've never been able to look a pea in the face. As for the bacon, on that point I'll be a Mohammedan to the end of my days.

"In the Mediterranean we were attempting to cut one of the life veins of England. Steamers were bringing her wheat from Australia, cotton from Egypt, tea, hemp, oils, and spices from India, Burma, Malaya, and the islands of the seas, and taking back coal, food, and munitions for the British outposts. What a place for an enemy submarine to work! And whenever there were no ships in sight we reveled in the scenery.

"We made eight cruises out of Cattaro, each lasting three or four weeks. The unrestricted U-boat warfare, declared in February, 1917, was on, and we had orders to sink everything possible. The *U-64* raided far and wide, and wrought its share of the general destruction at sea. On March 19th, we were off the southwest coast of the island of Sardinia. I was in my cabin reading a magazine article about the economic situation in Mexico when at midday the call came: 'Steamer ahoy!' I hurried above. The oncoming ship was vague in the mist, but I could distinguish an unusually high wireless equipment—



THE FRENCH BATTLESHIP "DANTON"—A U-BOAT VICTIM
One of the largest fighting ships ever sunk by submarine attack.

that of a warship. We took a dive, and presently I saw through the periscope that the vessel had changed its course, and I had a side view of it, with its five funnels and great gun turrets. It was a huge French man-of-war. It was zigzagging. A destroyer was patrolling as an escort, also zigagging. It was all as easy as pie—what you call a cinch, *nicht wahr?* The gray giant, in the course of its zigzagging progress, put itself straight across our bow in good torpedo range.

"'Torpedo tubes ready!' my orders followed each other in quick succession. 'First bow torpedo, fire—second bow torpedo, fire!'

"Bang! bang! Two heavy explosions came, one right after the other, as both of our torpedoes hit.

"With our periscope drawn in we stole blindly under water for a few minutes, then up went the asparagus for a look—the once over, yes? The warship had two great holes in its side just at the water line. These were death wounds, I knew, and as I peered through the eye piece I could see that the vessel was listing.

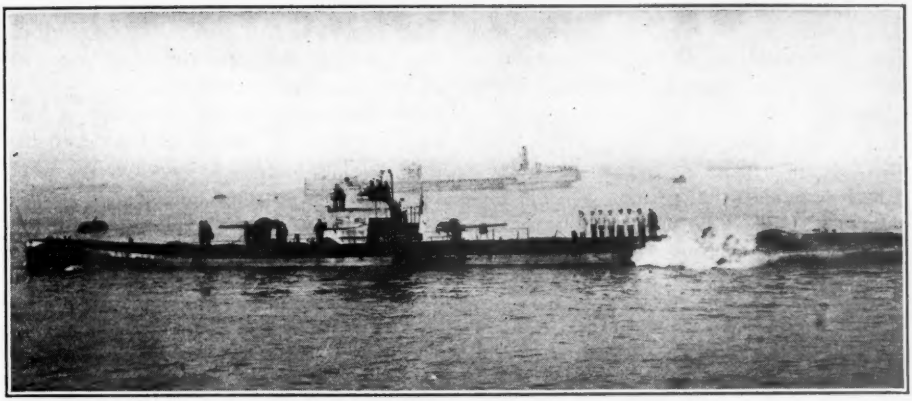
"My boat was kicking and bucking like one of those 'rocky roads' at your Coney Island. The *U-64* had an unfortunate trick, which she indulged in every so often, of getting unruly and rearing and plunging like a badly behaved horse. That is what had happened now. She popped up and broke water, so that her superstructure showed above the surface. Fast work was needed, for that destroyer convoying the battleship was certain to be after us like a streak. It was, and we got our boat in control just in time. We hurried down to the depths, but four depth bombs exploded uncomfortably near us before we had scurried away. After we had slid along for a couple of miles, I put the asparagus up again. The great warship was listing heavily now. The destroyer was busy rescuing survivors. We watched without molestation, and looked through our yearbook of fleets to identify the stricken vessel. We found it belonged to the Danton class of giant vessels of 18,400 tons displacement, 40 guns, and a crew of 1,100 men. We steered nearer to be ready with another torpedo if it were necessary to sink the giant. But she was going down fast now. Her stern shot high into the air, and she plunged and went down bow first.

"The destroyer picked up men struggling in the water and there were rafts floating about covered with survivors. Presently the destroyer started off with her burden and the rafts went drifting toward the horizon. They were sighted by fishing boats, as we learned later, and the shipwrecked men rescued. After the destroyer had disappeared we came to the surface and picked up a floating box that was full of letters. We learned from these that the foundered ship was the *Danton* herself, on her way from Toulon to Corfu, where a large part of the French Fleet was helping to blockade the Strait of Otranto. Later reports indicated that of the *Danton's* crew 806 were saved and 296, including the captain, were lost.

"Back in my cabin I picked up my magazine, but the economic situation in Mexico was hazy now. Words and phrases swam before my eyes. We had bagged the prize head of game, had sunk the biggest ship torpedoed by a submarine during the war, and even now the word was flashing by wireless around the world.

"In those days a large part of the Austrian Fleet was stationed at Cattaro, and there were a number of other German and Austrian submarines helping us tie up Allied shipping in the Mediterranean. Unrestricted U-boat warfare had been declared by Germany in February, 1917, and in the waters about England, France, and Italy we had orders now to sink every ship, without warning if necessary. The only zone in the Mediterranean remaining open to neutral navigation was in the western part, between the Balearic Isles and the Spanish coast.

"The Allies met this move by directing all ships to follow a certain course under the protection of armed patrol ships. This was playing right into our hands, because we no longer had to hunt for game. We knew just where our victims were sure to pass. Later, the Allies tumbled to this and sent each ship on a different course,



THE "U-64" CARRIED GUNS FORE AND AFT

The increased size and improved fighting equipment developed after the experiences of 1914 and 1915, are shown in this ship of the type commanded by Moraht.

with orders to zigzag all the time. Then we never knew where to look for them and ships were as scarce as the proverbial needle in the haystack. We had to keep a sharp lookout from the top of our little mast. Sometimes we would cruise for days when it seemed that the whole Mediterranean was empty.

"Our most stubborn fight with a merchant ship came after just such a lull. She was the French steamer *Amiral de Kersaint*, with a cargo of oats, wine, and general merchandise, bound for Marseilles from Oran on the North African coast. We sighted her immediately after we had sunk the Italian ship *Ausonia*, which went down so quickly that there was no time to launch a boat. We picked up fifteen men out of the water. We were plying the survivors with hot coffee when the Frenchman was reported. A shell across the bows of the *Amiral de Kersaint*, and we got a shell in return. The battle was on. After a few exchanges our gun went out of commission. The Frenchman ran. We kept after him, just out of range, while we worked with our gun. Finally, it was in order again. We drew up and the fight was renewed. We scored fifteen direct hits. We shot away the Tricolor from the mast. Those stout fellows tied another to their railing and continued to fire. Their ship was in flames and about to sink when they abandoned her, the captain leaving last. By way of contrast, there was a British steamer we attacked. She was armed, but made no pretense of fighting. The helmsman told me that the gun crew was so panic-stricken that the captain could not force them to their stations even at the point of his pistol.

"Then came 1918. The war under the sea was tightening. We had inflicted vast destruction on the Allies. For a while it seemed as if we would sweep the seas of commerce. The convoy system, the best system of defense against the U-boats, came into practice, and that made the going harder for submarines. Nearly every attack now meant the taking of large chances. You had to deal with fleets of merchant ships efficiently protected by convoying destroyers, those little devils that are the natural and most formidable enemies of submarines. The U-boats didn't have any joy rides. Toward the end of January we sank the British troop transport *Minnetonka*, which was proceeding empty to Malta. With 13,500 tons' burden, she was the largest merchantman on my list. During the following week we bagged five other vessels, one of them a small converted Italian cruiser.

"Heavy weather was running off the coast of Sicily, and the *U-64* was ploughing along through a welter of whitecaps. It was late in the afternoon on a day the following June.

"'Steamers ahoy!' and we sighted a big convoy. 'Dive for an attack,' was my

command. The high sea made it a hard job. The waves broke over our periscope, and obscured our vision. But never mind—how is it?—the first hundred years are the hardest.

"It was hard to manœuver, looking through that foggy periscope, but finally I had a big ship sighted for a shot. A torpedo left its tube, but missed. The steamer turned and charged, ready to ram us or give us a dose of depth bombs. The *U-64* turned her nose down, and along we went, passing under the oncoming vessel. Back to periscope depth again, and we were quite close to the steamer next in line to the former one. That ducking-under certainly had its advantages.

"'Torpedo—fire!' 'If we miss this one,' I thought, 'we are dubs.' Vision through the periscope was poor, but the range was very short. There was a great explosion. The torpedo hit the vessel amidships—another big one added to our record!

"I thought we were on the outside of the convoy, and turned the boat to proceed parallel with it. Thus stalking our flock of game, we could swerve in and get another shot. Suddenly, directly ahead, another steamer loomed. We were not on the outside of the convoy, but in the middle of it. Damn that hazy periscope.

"'Dive to 40 meters,' I ordered.

"The *U-64* nosed down, but before we were half way to a safe depth a tremendous explosion deafened us, and we were enveloped in blank, utter darkness as the lights flashed out. We had been hit properly, no doubt of that. The waves dashing in the periscope had prevented me from seeing the destroyer near us, and it had jumped on us with its accursed depth charges.

"'Report on all compartments,' I called with my heart in my throat. I had my flashlight on the instrument board. We were holding position all right.

"In an instant the word came that there was water in our stern compartment, where the bomb had caught us, but that otherwise the hull seemed tight. We put on the emergency lights, and managed to stop the leakage in our stern.

"'The depth steering gear is out of order,' the alarming word came abruptly. The explosion had badly damaged all of our steering gear, and the boat was out of control. And we were rising.

"I shall never forget my agony of fear as I stood there staring at the depth indicator. The finger was moving. We were rising to the surface, rising inexorably, and a swarm of enemy ships was waiting above. There was nothing to do. We popped out of the water.

"There were ships on all sides, big steamers and swift destroyers, though none very near us. The moment we broke water they began to shoot. We lay there on the surface in a rain of shells. I gave the order to try to dive. The boat obeyed, we went to 60 ft., and there the depth steering apparatus balked again.

"'Engines full speed ahead!' I shouted the order desperately.

"The boat lurched. The hand of the depth indicator moved swiftly. We were shooting to the surface. The *U-64* seemed to leap out of the water. I threw open the conning tower hatch for a good look around. A destroyer was bearing down on us at full speed to ram us. I gave the frantic order to dive. No use, she would not dive. There was a rending crash. The ram hit the conning tower. The boat lurched violently, and began to sink.

"We sank stern first. I thought our hull had been shattered, but no—it was still water-tight. Our diving mechanism was absolutely gone now and we could not steer to check our descent. We were on our way to the bottom. Before long the pressure would crush us. There was but one thing to do—blow the tanks. That would shoot us to the surface again. Our only hope! With our diving mechanism of no use, we were a submarine no longer. We were a surface craft. We would have to take our chances above water. We might be able to fight our way through the convoy. Darkness was coming on, and if we held out for a little while it would cover us.

"A conning tower emerged on the surface of the sea and a cigar-shaped body followed it. A terrible concentric fire broke out from the circle of ships.

"'Are we all right? Can we stay afloat?' I called to the chief engineer.

"'Yes,' he responded.

"'Man the guns!' I yelled, and leaped out on deck. The gun crew followed me, and the lone tiny craft started to fight its way out through the circle of armed merchantmen and destroyers.

"We steered ahead, our two guns firing as fast as they could. We shot at the ships near us. All the ships in the convoy concentrated their fire on us. Shells burst on all sides in the sea around us. Shells hit us.

THE SPECTACULAR END OF THE TANKER "MORENI"
Its burning cargo of benzine, spreading on the sea, kept the Mediterranean aflame for days.

"'She's going down!' The wild, despairing cry came from the man beside me, and even as he spoke the *U-64* sank beneath us like a stone.

"I began to swim mechanically. My leather uniform and heavy boots made it almost impossible for me to keep afloat. I don't remember how long I was out there in the water or much of what happened. One of the men, a petty officer who had been at the guns and had got away swimming, told me afterwards that he saw me floating under water and that he swam to me and held me up until he, himself, was exhausted. Fischer, another of the gunners, swam to the nearest British ship and climbed aboard on a tow rope. He told the men aboard that the captain of the submarine was out in the water, and the British put out a lifeboat. I remember faintly being fished out of the water, having my clothes stripped off, and being put in the ship's hospital.

"It is hard to tell of my boat going down like that, with my crew consigned to the fate of the submerged iron coffin. For on that occasion all but five of us were lost. I don't know how many were carried down inside of the boat. Perhaps a dozen were on deck when the boat sank. Some of these drowned and others were killed by shell fire. In all, thirty-eight were lost.

"The British kept me in solitary confinement for five weeks—first at Malta, then at Gibraltar, then in London—while they questioned me about military secrets. Nothing doing. Finally they told me that if I did not answer the questions they put to me I would be turned over to the French, who would shoot me for sinking the *Danton*. I knew that was a bluff, and told them to go on and shoot. Instead, they placed me in the Colsterdale Prison Camp near Ripon, England. I waited there as comfortably as a prisoner can until the war was over. After all the peace-making formalities were completed I was released in October, 1919, and was sent back to Germany. It was still later that I learned what craft had been responsible for the loss of the *U-64*. The British destroyers *Lychnis* and *Partridge II* were the boats that brought us to grief. The *Lychnis* dropped the depth charge on us and then rammed us, and the *Partridge* fired the shell that sent us down. Hard luck, boy, hard luck."

Next month: Raiding Within Sight of New York

THE WORKSHOP

MEXICO HAS long been a problem both to herself and to her neighbors—and, of course, the problem cannot be solved in a single series of magazine articles. Yet the knowledge given in a sane and sympathetic review of conditions in modern Mexico may go far toward stabilizing our relations with our Southern neighbors, and with that aim we begin presenting next month a series of three articles on Mexico. They are written by Henry Kittredge Norton, author of "Back of War" and of other books on international relations. He spent several weeks in Mexico gathering material. The articles will be illustrated with photographs and several unusual drawings recently made in Mexico.

The year 1928 marks the twenty-fifth anniversary of the first flight by the Wright brothers, and we believe it is fitting to begin in this month a series of articles on the development of aviation. The author is Lieutenant Lester J. Maitland, the noted army flier who flew to Hawaii and who is now aide to F. Trubee Davison, Assistant Secretary of War in Charge of Aviation. Lieutenant Maitland has risen from the ranks in the army and is rated as one of its best fliers. He has made an intensive study of all phases of aviation, and we believe that he writes as well as he flies.

When George MacAdam, one of our contributors for many years, was in Canada three years ago gathering material for the unusual article entitled "Carrying White Man's Justice to the Eskimo," which we published in our issue of July, 1925, he learned of the efforts of the Canadian Government to study the Eskimo and particularly of the adventures of Major Burwash among the tribes in parts of Canada rarely visited by white men. He followed the official reports of Major Burwash and after talking with him wrote the article in this issue entitled "Where White Men Travel Alone." Only one other white man is known to have traversed the region that Mr. MacAdam describes in this issue, and that man was Knud Rasmussen, the Danish explorer, who told of his travels in articles in this magazine in August and September, 1925. And now Major Burwash is off again on another one-white-man-expedition, as told in this Associated Press dispatch printed recently in *The Sun* of New York:

OTTAWA, Ont., June 22 (A. P.)— A one-man research expedition to the magnetic pole will be started within ten days by Major L. T. Burwash, world war veteran, arctic exploratory engineer, and Government official.

Major Burwash will travel by rail, boat, and dog team and expects to navigate a forty-foot Government launch through nearly nine hundred miles of icy arctic waters, assisted only by native Eskimos, stray trappers, and fur traders.

The object of the expedition will be to determine the extent which the magnetic pole has shifted since Amundsen's visit in 1908, and also to search for relics and records of the ill-fated expedition of Sir John Franklin.

Two ships of the Franklin expedition, the *Erebus* and the *Terror*, met disaster near the magnetic pole in 1845. Some of the records of the expedition later were found on Boothia Peninsula, and it is said that one of the ships can still be seen in the Arctic Ocean near King William Island. Should this report prove correct the ship may be raised to obtain for Canada the invaluable records believed aboard.

HENRY F. PRINGLE'S article on "Hoover: An Enigma Easily Misunderstood," in our June issue, aroused the ire of a resident of Crescent City, Florida, whose letter of protest follows.

To the Editor, WORLD'S WORK.

Sir: Evidently Mr. Pringle is ill-tempered and not fair-minded. Along the lines and between them is a spirit of intolerance such as is not often found in WORLD'S WORK. Criticism is out of all balance with commendation, and it is plain that it was the intention of the writer to make all the trouble he could for Hoover. He went a long way around to minimize Hoover's record of achievements, a man of service before the war, during the war, and since the armistice, instead of a man of speeches. To caricature in words Hoover's physical appearance is certainly discreditable, and the great majority of your readers will not approve. Why not play fair rather than partisan politics?

B. F. TILLINGHAST.

It may be of interest that some of Mr. Hoover's personal friends have said that they thought Mr. Pringle's analysis of the Republican presidential candidate was the best yet written about him. We do not agree with Mr. Tillinghast.

LIEUTENANT MAITLAND

Under the title "Those Raiders of the Deep," *Foster's Daily Democrat*, of Dover, New Hampshire, recently printed the following editorial comment on LOWELL THOMAS'S series about German U-boat commanders:

"The WORLD'S WORK is running a series of articles on 'Raiders of the Deep,' which is of unusual interest.... They actually did what they were supposed to do, namely, sink the ships and just leave the survivors to the mercy of the sea if there did not happen to be enough boats to take them away to safety. It is a savage sort of tale, this narrative of the war on allied commerce, and it does not appear to have any place in modern civilized life. Some of the Germans went to the bed of the sea in these terrible steel coffins. Only a few of the men came through unharmed. But the terror of it, the heartlessness, makes us feel that war is a sort of grim and terrible monster that should be put away from the face of the earth. These U-boat stories serve to make this phase of war show up in all its ugliness."

In the June Workshop there appeared what our correspondent in New Ulm, Minnesota, terms "the scurrilous letter signed 'Harry R. Graham,' about Luckner and the Germans in general in the World War." His answer to Mr. Graham's accusations follows.

To the Editor, WORLD'S WORK.

Sir: Mr. Graham says that he feels competent to speak because he spent forty-three months in the English and American armies. Now, I too feel confident to speak on this subject, although I served only in the American Army and in it not forty-three months but thirty-three years. It was my misfortune not to see the "mutilated children, dead women, cruelly abused young girls, even cats and dogs bayonetted for the pure lust of killing," in order to agree with Graham, and I regret to say that he must have hit a very bad brand to see all these things. Let him wake up and confine himself to *aqua pura!*

M. SEBALD.

From a reader in San Jose, California, comes this further, and more moderate, comment on Mr. Graham's letter.

To the Editor, WORLD'S WORK.

Sir: While many of us may not share the views of Mr. Graham, credit must be given to him for his courage in writing for publication, without hesitancy, his feeling about a

man who is alive and, if needs be, perfectly capable of taking exception to the more or less uncomplimentary remarks appearing in the letter.

Much can be said about atrocities in the World War and much will be said about them during the next war, but it must be remembered that war is not the only agency during which criminal acts are committed. Almost every day during our present so-called peaceful era we read of terrible crimes.

ALFRED ZAHL.

Commenting on Warden LAWES'S articles, a reader in Arcadia, California, recommends the passage of a Federal Pistol bill. This, as we pointed out in our letter in reply, would require an amendment to the Federal Constitution, for the Second Amendment to that document provides that "The right of the people to keep and bear arms shall not be infringed." The letter follows.

To the Editor, WORLD'S WORK.

Sir: "Life in the Death House" makes one shudder at the thought of being one of its inmates. But Warden Lawes, I am afraid, has not told half; had his personal experiences been placed in print, they would have shocked the country.

Warden Lawes can do this country a great service by securing the passage by Congress of a bill making it a felony for any one to make or possess any firearm.

ARTHUR B. BONNER.

In the letter below, a reader in Owensboro, Kentucky, discusses several statements in ALVIN W. HALL'S "New Styles in Paper Money," in our May issue. But we would call her attention to the fact that, in 1900, general legislation was passed by Congress authorizing the Secretary of the Treasury to take whatever action was necessary when one type of currency fell below par. This is interpreted to mean that he should, when necessary, exchange such a currency for some other that is redeemable in gold. Thus, in effect, all the currencies are redeemable in gold, and so are equally secure. Her letter follows.

To the Editor, WORLD'S WORK.

Sir: There is reserved in the United States Treasury vaults a gold dollar for the redemption of each gold-certificate dollar, but only a silver dollar for the redemption of each silver-certificate dollar. These two kinds of government money are not "equally secure" unless silver dollars are redeemable in gold dollars, and Congress has never so enacted.

LAURA R. WHITE.

The mining engineer of Philadelphia whose letter on FREDERICK PALMER'S "Which Way, America?"—appearing in the May Workshop—called attention to "the great danger of the increasing tendency to take away from the states their proper rights and duties and vest them in the central government," has written to us of his hope of seeing Mr. Coolidge soon a member of Congress.

To the Editor, WORLD'S WORK.

Sir: I am one of those who hope that Mr. Coolidge, when he leaves the Presidential chair, as he certainly will do on March 4th next, will consent to become a member of one of the houses of Congress and devote his fine abilities to endeavoring to stop this tendency of the government to take over the rights and duties of the states before more serious damage is done. Not the least of the evils of this tendency is its widespread moral effect upon the people.

DANIEL MOREAU BARRINGER.

Commendation for Mr. Palmer for his article in our April issue is contained in the following letter from the Director, Research Division, National Education Association of the United States, in Washington, D. C.

To the Editor, WORLD'S WORK.

Sir: I was much interested in the discussion of trends in public education presented in "Which Way, America?—Our Great Educators Survey Their Field." It is gratifying to see that the WORLD'S WORK is publishing the statements of workers in public education, who are well qualified to speak on the subject, instead of limiting that discussion to laymen, as sometimes happens.

JOHN K. NORTON.

The White House
Drawing by E. H. Suydam